The New Data Center

The road to the new data center is paved with advanced IP. A look at what it takes to create today's all-IP infrastructure. Supplement begins after Page 34.

NETWORKWORLD

The leader in network knowledge ■ www.networkworld.com

August 22, 2005 ■ Volume 22, Number 33

Cisco preparing management play

BY DENISE DUBIE AND PHIL HOCHMUTH

Cisco is looking to expand its proprietary network monitoring tools into enterprise-scale management products that can tackle multi-vendor networks, advanced IP applications and business services.

"We have been investing much more heavily in management technologies, through internal developments, OEM agreements and acquisitions," says Cliff Meltzer, senior vice president of Cisco's Network Management Technology Group. "We believe we should be providing a robust and broad set of tools that address the network, as well as systems, applications and other elements critical to customers' businesses. We are working on an open, standardized way to help customers see and ensure all those elements interact properly across the infrastructure."

The company has yet to detail specific product plans, and analysts speculate that management is more a long-term strategy. But Cisco confirms it is working to

See Cisco, page 86

Questions surround smartphone security

Centralized mgmt. lacking

BY ELLEN MESSMER

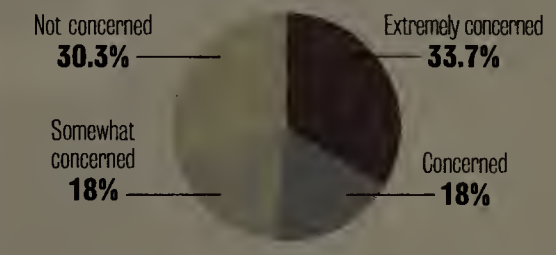
Wireless vendors are rolling out a new generation of handheld computers called smartphones for corporate users, but many network executives say they won't consider them until the means to manage and secure them are clear.

For example, Nokia, which uses the Symbian operating system, recently made available the Nokia 9500 Communicator, a handheld with Wi-Fi and cellular support. This fall the company plans to ship a similar model, the 9300, without Wi-Fi. Nokia says they're

See Smartphone, page 14

The worry

How concerned are you with the possibility of hackers stealing or corrupting confidential business information stored on your smartphone?



SOURCE: INSIGHT RESEARCH, SPONSORED BY SYMANTEC



Feature

CLECs play a new tune

They tried to take on the ILECs, but lost the battle for the local loop. Now competitive local exchange carriers are focusing on selling WAN services to enterprise telecom buyers such as XM Satelite Radio's John Archer. Page 70

WALTER P. CALAHAN

Net access security plans sow confusion

BY TIM GREENE

The worms that threatened Windows computers last week made clear once again that vulnerable desktops and laptops pose a serious threat to network security — but the answer to shoring them up remains murky.

Vendors are developing such a wealth of products and security architectures for keeping potentially infected machines off the network and shutting down badly behaving ones that customers might have trouble figuring what is best for them, experts say.

"Everyone is rushing into network access control, and there are still a lot of start-ups coming in," says Chris Liebert, senior network

See Security, page 12

WiderNet

Long view of the law

Police 'futurists' walk fine line between goals and liberties.



CARL WIENS

BY CARA GARRETSON

In the Information Age, law enforcement can't get too much of a good thing, right? Data flowing from RFID chips, images streaming in real time from surveillance video, light or vibration readings taken by microscopic sensors called smart dust, unmanned aerial vehicles reporting locations … it's all good. Or is it?

These are just some of the technological advances, many of them in working order today, that will no doubt make upholding the law easier going forward. However, as police officials begin

See Futurists, page 88

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"At Nissan, we expect to save at least $135 million annually thanks to the efficiencies that Windows Server 2003 and Exchange Server 2003 are helping us achieve."

Toshihiko Suda
Senior Manager, *Nissan Motor Company, Ltd.*

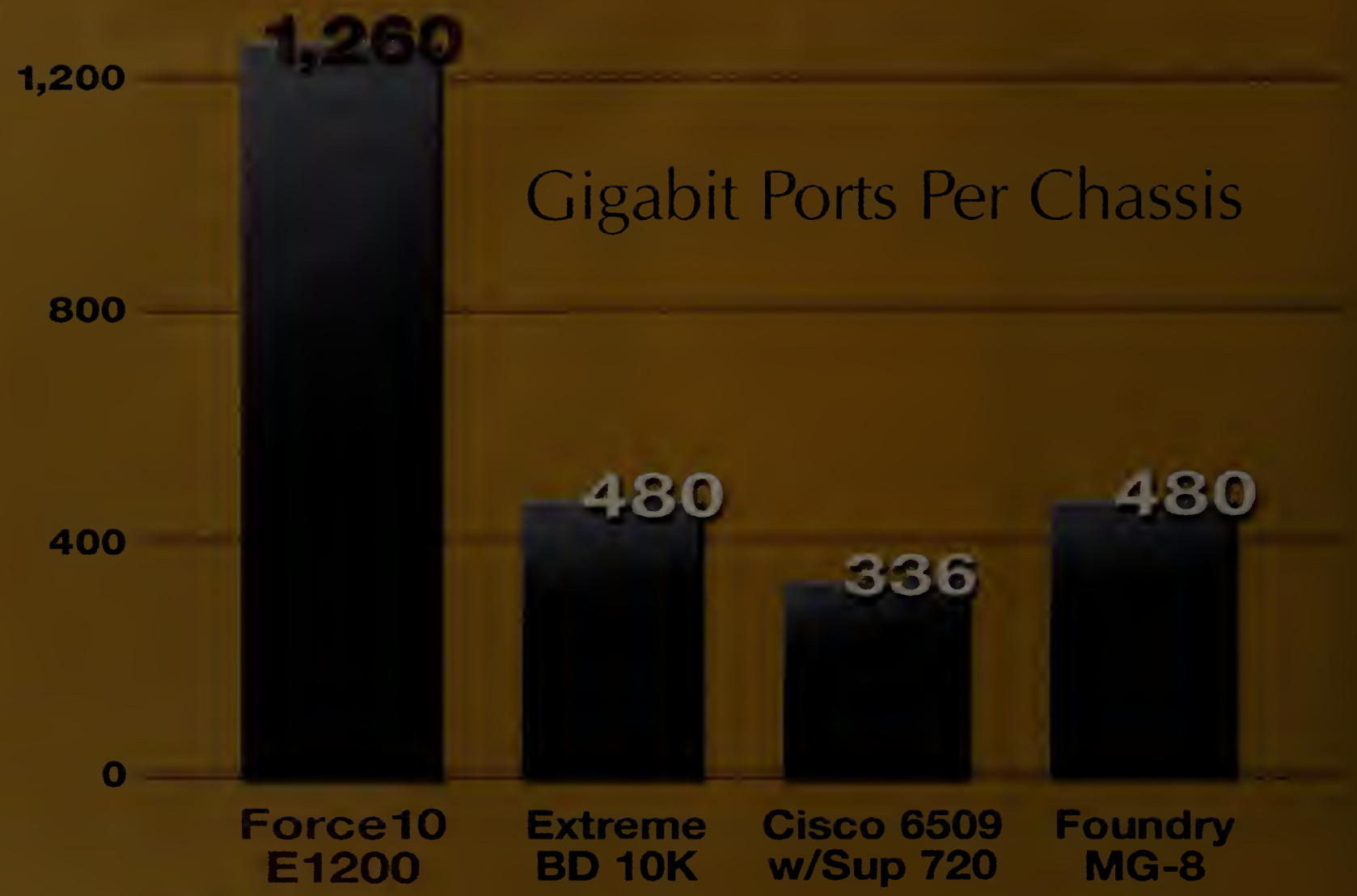
Make a name for yourself with Windows Server System. An upgrade to Microsoft Windows Server System made it possible for 50,000 worldwide employees at Nissan Motor Company to have more secure remote access to their e-mail and calendars from any Internet connection, without the hassle and expense of a VPN. Here's how: By deploying Windows Server 2003 and Exchange 2003, not only did Nissan IT meet the CEO's demand for better global collaboration, they expect to save at least $135 million by streamlining their messaging infrastructure. To get the full Nissan story or find a Microsoft Certified Partner, go to **microsoft.com/wssystem**

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NETWORKWORLD

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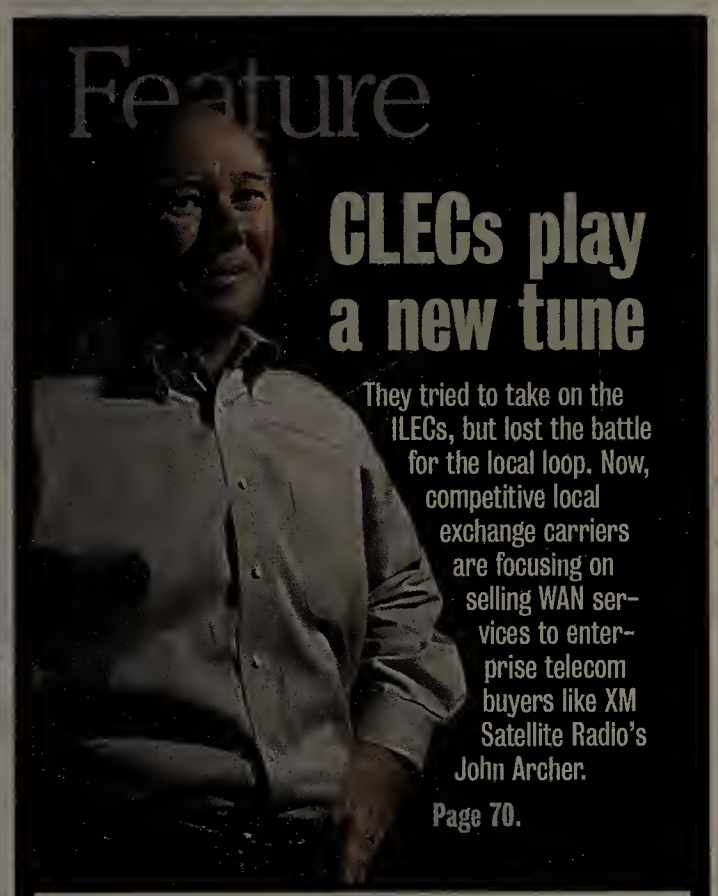
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Feature



CLECs play a new tune

They tried to take on the ILECs, but lost the battle for the local loop. Now, competitive local exchange carriers are focusing on selling WAN services to enterprise telecom buyers like XM Satellite Radio's John Archer.

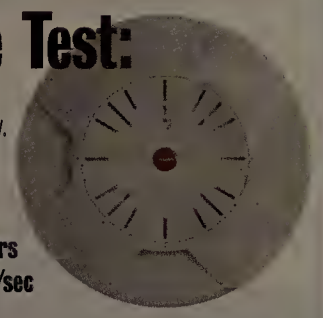
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WALTER P. CALAHAN

Clear Choice Test:

The Xirrus XS-3900 offers out-of-this-world Wi-Fi capacity.

Page 74.



■ The Xirrus XS-3900 can support more than 1,000 users at rates of up to 2.35M byte/sec

The New Data Center

Piecing together the next-generation IT architecture

The road to the new data center is paved with advanced IP, from hearty transport connections like MPLS to sophisticated applications like voice or video over IP. This editorial supplement on the new data center, fifth in a six-part series, looks at what it takes to create today's all-IP infrastructure. Supplement begins after **page 34.**

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Face-off: Jericho Forum
Is de-perimiterization a good idea for net security? AppGate's Jamie Bodley-Scott and Network World Lab Alliance member Joel Snyder square off. Read their arguments, then hop into the forum.
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Podcast: Successful business blogging
With comScore reporting that 50 million Americans read blogs and that those readers tend to be more likely to shop online, we chat with Matt Moran, author of the *The I.T. Career Builder's Toolkit*, about what makes a good business blog.
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Letters to the editor
Every week we receive more letters than we have space to print. Head online to see what readers say about VoIP voice quality, curbing spam, Bernie Ebbers' fate, the future of IPv6 and more.
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Online help and advice

Nutter's Help Desk
Help Desk guru Ron Nutter answers a reader who asks: "Can you give me the command to sniff from say 10.70.1.2 port interface fa0/15 to 10.70.1.5 port interface fa0/14? I am using a Cisco 2950 switch."
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Telework Beat
Tips for formalizing a telework support strategy, Part 2 of 2
Ann Bednarz offers tips on how to write a corporate telework policy.
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Small Business Tech
SMB global collaboration
Columnist James Gaskin looks at how one small company works across 23 time zones without breaking the bank. **DocFinder: 8554**

Seminars and events

Vortex2005
Vortex2005: Setting the IT Agenda will deliver straight talk from the leaders of AT&T, EMC, HP, Intel, Microsoft, Sun, and others on security, collaboration, IT flexibility and more at the annual gathering of the key stakeholders in enterprise IT.
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NEWSbits

UBS amends timetable for Cisco release

■ A report issued by UBS Investment Services last week backed off statements in an earlier report that Cisco would release an upgrade to its Catalyst 6500 switch Supervisor module over the next few months. The updated report said that the investment firm was "premature" in its assertion that Cisco would release a product it called the Supervisor 1440 module, which would provide 1.4T bit/sec of switching bandwidth, doubling the performance of the previous Supervisor 720. UBS maintains that this product will come out, but not until 2006. Cisco last week confirmed that it had no plans to launch an upgrade of its Catalyst 6500 Supervisor blade this year, but would not comment on speculation about product plans for 2006.

TheGoodTheBadTheUgly

What's your name worth? An eBay auction to raise money for the First Amendment Project will let individuals bid for the right to see characters in upcoming novels by famous American authors take on their name or a name of their choosing. The auction is scheduled to run Sept. 1 to Sept. 25.



BRIAN GAIDRY

Poor sports. Next year's World Cup soccer tournament could be fertile ground for mobile phone viruses if the recent World Athletics Championships in Finland are any indication. Attendees not only had to brave wind and rain, but also the threat of catching the Cabir mobile phone worm, according to security firm F-Secure, which says a few dozen phones were infected. Cabir uses Bluetooth short-range wireless signals to jump between cell phones over distances of up to 30 feet.

< All for a cheap laptop. Seventeen people were injured last week in Richmond, Va., as a throng of more than 5,000 rushed for position to claim one of 1,000 4-year-old Apple iBooks being sold for $50 apiece. New versions of the laptop sell for about $1,000.

Microsoft tempers RSS "renaming" flap

■ A well-known Microsoft Weblogger last week downplayed the proposed use of a new name for RSS in the next version of Internet Explorer following several days of intense discussion in the online community about the notion of rebranding RSS. Robert Scoble, a Microsoft technical evangelist and writer of a popular Weblog, said the company had not made a final decision as to whether it would rename RSS "Web feeds" in the final version of IE 7 the way it has in the beta version now available. "We never said Microsoft has decided [to rebrand RSS]," Scoble said. "It's a year ahead of [Windows Vista] being released, and we're trying to work with the community to get some consensus."

Spammer convicted of stealing info

■ A jury in Little Rock, Ark., has convicted Scott Levine of Boca Raton, Fla., who ran a now-defunct bulk e-mail marketing firm called Snipermail.com, of stealing more than 1.6 billion customer records from customer information management company Acxiom by breaking into its computers. In a criminal investigation jointly conducted by the FBI and the U.S. Secret Service, Levine was charged July 21, 2004, with breaking into Acxiom's databases, where he and other Snipermail.com staff downloaded around 8.2G bytes of personal data. Levine faces sentencing in early January.

{quote of the week}
{quote of the week}
{quote of the week}

"There's the possible future, the probable future, and the preferable future. There are things we can do today to make a better future."

Tom Cowper, second vice president, Society of Police Futurists International, discussing law enforcement and technology.

See story, page 1.

Police foil Wi-Fi-enabled bank heist

■ Finland called on its citizens to take more care securing their Wi-Fi networks after a report last week that about $245,400 had been stolen from a local bank using an unprotected home network. The Helsinki branch of global financing company GE Money called on police to investigate the theft in June. The money, which has since been recovered, was stolen from one of GE Money's accounts at a local bank, said Jukkapekka Risu, investigating officer for the Helsinki police. The police now believe that the company's 26-year-old head of data security in Helsinki stole banking software from the company along with passwords for its bank account, Risu said. Accomplices then accessed the account from a laptop computer using an unprotected network at a nearby apartment building in Helsinki's Kallio district. They used the passwords to transfer the money to a different corporate account that they had set up six months earlier, Risu said.

Google to issue new round of stock

■ Google last week made known its intent to issue and sell 14 million shares of its stock, a move that set off a flood of speculation. Analysts fretted about the effect of Google's new offering and speculated on why a company with a $2.9 billion cash pile is eager to raise several billion more. In its filing, Google attributed the need to "general corporate purposes." Some suggested that acquisitions are one likely expenditure. The company's string of buys to date include Brazilian search company Akwan Information Technologies, Web analytics developer Urchin Software, social network service Dodgeball.com, and a stake in Chinese search engine Baidu.com. Google's stock debuted at $85 per share last year. It topped $300 for several days in July and now hovers around $280. The second offering should add about $4 billion to Google's coffers.



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We like the way Alan Rosinski thinks and hope the iKeys Holder will soon follow. Check back each Monday for the start of a new contest. www.networkworld.com/weblogs/layer8

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TREND MICRO™

Microsoft desktops get help from DesktopStandard

BY JOHN FONTANA

DesktopStandard this week is expected to add access control and centralized administration features to its software for managing configuration of Microsoft desktops and servers. In addition, the company will unveil plans to upgrade its patch management wares.

DesktopStandard will ship GPOVault Enterprise, a repository where Microsoft's group policy objects can be edited and tested before being deployed, and a beta of PolicyMaker Software Update 2.0, which uses group policy as the foundation for patch management.

Microsoft's group policy technology, which is supported on Windows 2000, XP and Windows Server 2003, works in conjunction with Active Directory and lets administrators manage, customize and lock down desktop and server settings based on a set of policies maintained in the directory. Experts say up to 80% of Win 2000 users have implemented group policy to help secure their networks using policy-based management principles.

GPOVault Enterprise is the licensed version of GPOVault, which was released as a free product a few months ago. The Vault software lets users check out and check in group policy objects so they can be updated or modified within a test environment. The enterprise version

See DesktopStandard, page 10

OnFiber unveils alternative local access offering

BY JIM DUFFY

Metropolitan area network provider OnFiber this week is expected to unveil a local access offering designed to provide customers with an alternative to incumbent carrier facilities.

Called AdaptiveLink, the service provides customized, fiber-based access bandwidth to companies looking to move transport beyond the copper loops and SONET speeds typically offered by RBOCs and interexchange carriers (IXC). AdaptiveLink also is targeted at those companies looking to employ multiple carriers for route diversity whose choices are becoming fewer now that RBOCs are buying up their IXC counterparts — SBC acquiring AT&T and Verizon purchasing MCI — and regulatory frameworks around unbundled network elements and broadband Internet access are being dismantled.

"The access market is becoming more proprietary," says OnFiber CEO Danny Bottoms. "Ninety-five percent of access is still controlled by the Bells. People need choices."

In addition to providing more choice, AdaptiveLink is intended to provide bandwidth options other than T-1 and DS-3 for companies looking to support critical applications such as disaster recovery, business continuity and data storage. It also is designed to address what OnFiber says are security shortcomings of the legacy copper infrastructure of the incumbents that encompass hundreds of central offices — each of which represents a point of failure in the network.

OnFiber augments its own T-1 and DS-3 TDM transport services with wavelengths and Ethernet. Bandwidth scales from 10M to 10G bit/sec.

OnFiber also says it can turn service up within weeks instead of months that it now takes.

"We're the ultimate bypass [around] the RBOC," Bottoms says.

Analysts say AdaptiveLink is an outgrowth of OnFiber's AdaptiveBuild product, which is a customized WAN offering for intercity connectivity.

"It is a segment of that process [in which they] take their knowledge of how to build big networks — finding fiber and where it's supposed to go, avoiding certain geographic obstacles, and figuring out the best way of carrying data or traffic," says Brian Van Steen, a senior analyst at Ovum-RHK.

Van Steen says OnFiber's major challenge in selling AdaptiveLink will be to wean companies off of the incumbent facilities they've used for years. Customized services are generally priced at a premium, he says.

"How many companies can actually afford a customized solution?" Van Steen asks. "You're definitely talking Fortune 500 company or equivalent. [The incumbents] are obviously all targeting the large companies with large revenue potential. It's going to be competitive."

The requirements of midsize to large companies are becoming more complex, Van Steen says, so the market for AdaptiveLink might expand beyond the Fortune 500 to the Fortune 1000.

OnFiber is initially rolling out AdaptiveLink in San Francisco and Washington, D.C., two metropolitan areas where it has 600 route miles in each city and where each has more than 10,000 businesses.

AdaptiveLink also is intended to increase OnFiber's penetration into the access market. Twenty-three percent of the carrier's revenue is from access, while 27% is from what OnFiber calls the Business Networks market — disaster recovery, business continuity and storage — and 50% comes from Metro Core carrier-to-carrier sales.

"We need to own the network and the customer in order to be successful in the long run," Bottoms says. ■

Another access option

OnFiber is trying to sway customers away from the incumbents with its service that provides customized, fiber-based access bandwidth.

	Legacy network access options	AdaptiveLink
Bandwidth	Traditionally offer SONET speeds	Managed, Ethernet, SONET and wavelength services from 10M to 10G bit/sec
Reliability	Multiple central offices represent single points of failure	OnFiber facilities diverse from LEC infrastructure
Implementation time	Months	Weeks

SOURCE: ONFIBER

IBM targets data integration with new WebSphere release

BY JENNIFER MEARS

IBM has released the latest version of WebSphere DataStage TX, data integration software it acquired from Ascential, as part of its effort to make it easier for businesses to manage and use information from a variety of data sources.

WebSphere DataStage TX 8.0 has a more powerful data integration engine, a more user friendly visual interface and technology that makes it easier to integrate XML and non-XML data, says Jonathan Arneault, product marketing director for WebSphere DataStage TX. The software integrates data from a variety of sources, including mainframes, specializing in linking complex data from proprietary back-end systems.

"The major theme is we're trying to simplify things — take the black arts out of the system," Arneault says. "So you don't have to be an expert to use this. We've automated a number of features."

Doug Smith, director of business process modeling and integration at supplier integration and order management services firm CommerceHub in Albany, N.Y., says the new release of WebSphere DataStage TX makes it easier to integrate disparate systems.

WebSphere DataStage TX "has always been a versatile, powerful transformation development tool with a fast, efficient execution environment," he says. "Version 8.0 makes significant improvements in how transformations involving XML are handled and offers helpful new debugging tools for developers."

More than 1,000 companies — many in the financial services, healthcare and manufacturing industries — use WebSphere DataStage TX to integrate data from complex, proprietary back-end systems, Arneault says.

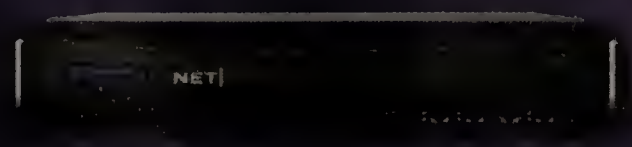
"WebSphere DataStage TX takes proprietary systems like a train manifest, or a wire transfer, or a back-end COBOL application or a Unix proprietary system interface and then integrates all of that data with any other kind of data," Arneault says.

Analysts say the WebSphere DataStage TX 8.0 release is interesting from an IBM strategy perspective. The software competes with IBM's own WebSphere business integration products, as well as with lower-level data transformation products from Tibco and WebMethods.

"After the Ascential acquisition, the question in everybody's mind was what was IBM going to do with this," says Shawn Willett, principal analyst at Current Analysis. "With this release they are signaling that they are going to keep the technology and keep supporting it."

Included in the 8.0 release is the availability of new tools for industry-specific data integration, including the WebSphere Data Stage TX Pack for HIPAA EDI, WebSphere DataStage TX Packs for electronic data interchange, WebSphere DataStage TX Packs for enterprise applications (including SAP, Siebel, Oracle and PeopleSoft), and WebSphere DataStage TX Pack for SWIFT. ■

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**Percent of customers who gave vendor 5-out-of-5 rating for overall customer satisfaction. Frost & Sullivan, May 2005.*

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NetScaler is now the Application Networking Group of Citrix Systems

CITRIX®

Intel pulls Sarvega into software effort

BY JOHN FONTANA

Intel last week added another component to its developing strategy of using software to enhance its chipset and other products such as network adapters.

The company purchased XML acceleration and security start-up Sarvega for an undisclosed sum. Intel says it plans to continue to sell and support Sarvega's lineup of XML appliances — the XML Speedway Accelerator, XML Guardian Gateway and XML Content Router.

Experts, however, say that isn't likely the long-term strategy, given Intel's past failures in the appliance market, most recently the discontinuation in 2001 of its NetStructure line, which included an XML traffic-management device along with switches, appliances and VPN products.

Instead, experts say the focus is likely Sarvega's XML EventStream Operating System (XESOS), a hardware independent technology that provides a highly optimized engine for XML processing and security.

"Intel can take the XESOS technology and incorporate it into other value-add products," says Jason Bloomberg, an analyst with ZapThink. While Intel would not market its own distinct products to IT shops, OEMs could marry their hardware or software to the Intel technology to take advantage of the XML capabilities.

Such devices eventually could compete with Cisco's Application-Oriented Networking (AON) technology.

Intel's software incorporation strategy is led by the company's Software and Solutions Group, which will absorb the Sarvega acquisition. Intel reportedly now employs more than 5,000 software engineers.

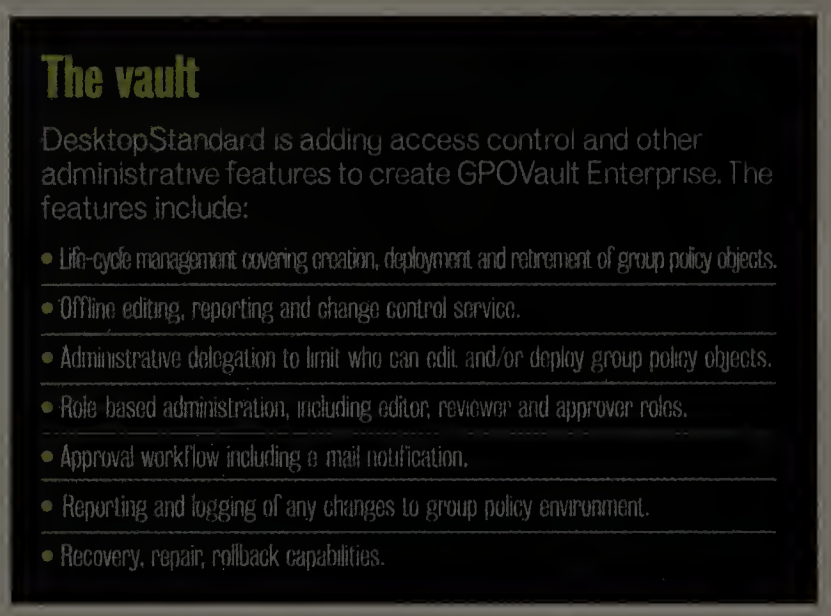
"One theory is that Intel is looking into building out its blade-management infrastructure, and XESOS can be a good software component that helps Intel offer XML networking capabilities," Bloomberg says. Intel's OEMs could take those capabilities and incorporate them into their blades. Sarvega was finding a niche in the blade market, signing a deal with Egenera to integrate its XML wares into the company's BladeFrame System.

"XESOS was one of the reasons that Intel purchased Sarvega," says Peggy Weigle, COO for Sarvega. "We plan to extend, enhance and integrate over time." She says more details should be available in mid-September.

Intel announced late last year that it would create product platforms by combining its chipset technologies, such as it did with its successful Centrino mobile platform. The company has other platforms, such as dual-core processor servers with built-in virtualization capabilities. Those platforms often use chipsets enhanced with on-board software products.

Intel this year also introduced its Intel Software Network, a collection of software development products, tools and training to help software developers build Intel technology into their platforms, and the Professional Business Platform (PBP), which, like Centrino, is a blueprint for a set of chips tested by Intel that OEMs can incorporate into their products. PBP includes Intel's Active Management Technology (AMT), a management engine embedded in Intel's Pro Gigabit Ethernet network adapter that works with its 945 chipset. Vendors such as BMC, Check Point and Novell utilize AMT.

"While XML acceleration alone was probably never enough to sustain a stand-alone company, this is Intel's way of telling the world that Moore's Law is not enough to address problems of XML performance," says Eugene Kuznetsov, founder and CEO of DataPower, one of Sarvega's competitors. ■



DesktopStandard

continued from page 8

adds a service that enforces access controls so only designated administrators can modify specific group policy objects. The service also provides delegation capabilities so administrators can specify who can deploy the edited group policies to the network. It also includes a workflow process for approving deployment of the policies.

"High-level administrators can deploy GPOVault and maintain tight control over their group policy objects," says Eric Voskuil, CTO for DesktopStandard.

The company, which competes with FullArmor, NetIQ and Quest, plans to extend the feature in the next version so users can delegate access to individual extensions within a single group policy object. Today, access controls cover the entire object, which consists of a number of extensions.

GPOVault Enterprise also includes role-based administration, a template library of base group policy objects and rollback features.

In addition, the company last week also released the beta of PolicyMaker Software Update 2.0, which includes a reporting feature.

"With the reporting capabilities we can audit," says Jay Leal, vice president of technology for the Inter National Bank in McAllen, Texas. "We know which patches are deployed to which machines. In banking we have regulatory oversight, we need to produce those reports and prove that we are compliant. So we are very interested in these reporting capabilities."

PolicyMaker supports not only Microsoft updates but those from third-party vendors, and the software ties into the Microsoft Update site for downloading patches.

PolicyMaker, which is expected to ship before the end of next month, costs $11 per seat for 100 seats. GPOVault Enterprise is priced at $1,400 per Active Directory domain. ■

Intel backs global initiative to aid municipal wireless net

BY STEPHEN LAWSON, IDG NEWS SERVICE

Intel publicly lined up behind municipal wireless network projects last week, kicking off an initiative with hardware, software and network partners to help communities around the world carry out the sometimes controversial rollouts.

Cisco, Dell, IBM and SAP also are part of the Digital Communities initiative, along with 16 other companies, including wireless vendors such as Alvarion, security vendor Check Point and British Telecommunications. Intel has already helped 13 pilot communities design, develop and deploy systems and services, the company says.

Cities can improve their quality of life by providing Internet access to residents and by improving government services such as permit applications and emergency response by using wireless technologies, said Anand Chandrasekher, vice president and general manager of Intel's sales and marketing group, during a conference call to announce the initiative.

"When you combine these all together, the hope is for economic vitality in the communities," he said. "Our vision . . . is as you unwire communities and layer services and applications on top of it, it should make life better for people."

Local governments can use wireless technology to lower their own operational costs, enhance public safety and security, provide equal and affordable broadband access, and promote growth and competitiveness in their communities, Intel said. Cities already working with the Digital Communities technologies use it to provide widespread wireless Internet access to residents and to give city employees such as water meter readers and housing inspectors instant access to information while they are in the field, said mayors participating in the conference call.

However, the idea of governments building wireless networks or providing services has come under attack from some corners, namely incumbent service providers. Last year, Philadelphia reached a deal with Verizon that let it go forward with a planned wireless broadband service around the city, but carriers helped get a state bill passed that lets service providers block such projects.

Verizon opposes paid services offered by cities and municipalities on the grounds that governments have unfair advantages, such as the ability to tap public funds and not having to pay taxes.

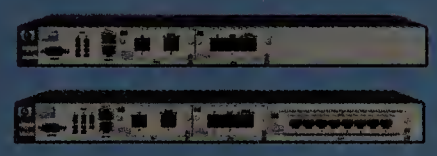
Philadelphia is one of the pilot locations in Intel's initiative. Others are Cleveland, Taipei and Corpus Christi, Texas; Portland, Ore.; Mangaratiba, Rio de Janeiro, Brazil; Dusseldorf, Germany; Gyor, Hungary; Jerusalem; Monaco; Seoul, South Korea; Osaka, Japan; and the Westminster area of London.

IDG News Service correspondent Grant Gross contributed to this report.



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Security
continued from page 1

security analyst for The Yankee Group.

Seventy-four percent of 304 IT executives surveyed by IDC say they expect to spend more on this type of endpoint security within the next two years, and 15.5% say they expect the increases to be large or very large.

The two vendors carrying the most clout in this area are Cisco and Microsoft, which have announced and started to implement their respective plans for ensuring individual devices meet network security policies. Their products are so pervasive that many customers might be swept along by their endpoint security plans, Liebert says.

Both companies have compiled long lists of vendors that agree to support their schemes, making them more attractive to customers who already own gear made by these security partners.

Cisco's Network Admission Control (NAC) requires all-Cisco networks with all the gear upgraded to a certain software revision. Microsoft's Network Access Protection (NAP) is based on software in Windows clients and servers that relies on cooperation of hardware vendors for enforcement.

Others in security arena

Network vendors Juniper and Nortel have their own endpoint security schemes, as do a host of security vendors including Check Point, Endforce, Vernier, Nitro Security, Mazu and LANCope. Many remote access VPN vendors have their own endpoint security software that determines whether machines are admitted to VPNs but that don't fit into larger endpoint security frameworks for corporate networks.

Security specialist Symantec recognizes the importance of such technology, as demonstrated by its planned purchase of Sygate, announced last week. Sygate has arguably one of the best-developed endpoint protection offerings, says Chris Christiansen, an analyst with IDC.

The common thread among these products is that a central server scans machines before they gain network access to see, for example, if they have personal firewalls properly configured and running, anti-virus software updated and running, and properly patched operating systems. "It comes down to checking the endpoints with a client to see if they are compliant with a policy that says they are safe to be admitted to the network," Christiansen says.

If not, the security gear can deny access, send a message telling what remediation is needed, direct the remote machine to a site where it can get what it lacks, or grant access to a quarantined network segment where the machines have limited rights.

Some gear also can monitor traffic within corporate networks, and recognize abnormal traffic and shut it down. This is the goal of NAP and NAC, and is what some security vendors offer now. Vernier's EdgeWall gear, for instance, recognizes and quarantines suspect traffic while allowing normal traffic to continue.

Customers have a long list of options to wade through, and their decision is made more complex by the many alliances among vendors to support each other's products, Liebert notes.

Sygate, for example, supports a battery of products from other vendors, including Alcatel, Aruba Wireless Networks, Aventail, Cisco, Enterasys, Extreme Networks, HP, iPass, Juniper, Microsoft and Nortel. Check Point supports Enterasys, Foundry Networks and Nortel, among others. Nortel supports Sygate, Symantec, Check Point, Microsoft, Network Associates, Trend Micro and others.

While it seems hopelessly confusing, the purpose of this web of alliances is to make things simpler for end users, says Sygate President and CEO John De Santis.

The goal is to support endpoint security right away regardless of whose equipment makes up a customer's network, he says. This falls in line with an IDC study that says enterprise customers are cool now and will remain reluctant to go forward with endpoint security schemes that lock them in to buying all their network gear from a single vendor.

The goal is for industry standards that will make compatibility issues melt away, De Santis says. "We're pushing for industry compliance," he says.

In the meantime, businesses should weigh just how comprehensive their endpoint protection should be, Yankee's Liebert says. She recommends companies answer the following questions to help decide what they need:

- How many potentially vulnerable machines are on the network and what risk that poses?
- How sensitive is the data being transmitted from remote locations and what is the cost of its being compromised?
- Has the business suffered an outbreak before?
- Is there a high turnover rate among employees who might later attack the network? ■

What's the worry?

An IDC survey of 304 corporate IT executives asking them to rank their top concerns about securing workstations and laptops came up with these results:

1. Unauthorized access.
2. Virus protection.
3. Enforcement of security policies.
4. Cost of ownership.
5. Securing remote access.
6. Limiting security rights to unauthorized users.
7. Centrally managing security policies.
8. Development issues.
9. Securing e-mail.

Correction

■ The story "Bringing LAN-like file delivery to WANs" (Aug. 8, page 22) should have stated the price of Riverbed's Steelhead appliance as starting at $7,500.

Zotob fizzles while new worm emerges

BY JOHN FONTANA

Was it the worm that wasn't or the worm that was?

That seemed to be the big question last week when the Zotob worm appeared just three days after Microsoft released patch MS05-039 to close a vulnerability in the plug-and-play feature in various flavors of the Windows operating system, with Windows 2000 the most vulnerable.

Early reports indicated that the worm could be ready to bust out and make Sasser, which at one point during its 2004 rage raised Internet traffic 40%, look like a non-event. By the end of last week, Zotob and its seven variants proved they had more bark than bite, and attention turned to a new vulnerability in Internet Explorer that the SANS Institute's Internet Storm Center had labeled a major threat.

Zotob established a record turnaround from the time Microsoft released a patch until the worm began appearing, says Lisa Myers, a researcher at McAfee.

The quick strike hit some major companies, including CNN, *The New York Times* and ABC News, but in the end, the assessment was that Zotob and its variants had been a blip. The Internet Storm Center said: "Likely this is an isolated event, which became newsworthy because CNN got infected."

Security experts cited a number of factors, including that many home users have upgraded from Windows 2000, Zotob's main target, to XP or are using older systems such as Windows 95.

"The way that these things spread the fastest is when home users get hit," says John Pescatore, an analyst with Gartner. He added that the infection also was low among corporate users because the worm used port 445 as its entry point, which many users have closed on their firewalls since last year's Sasser worm. He also noted intrusion-protection systems helped, because many vendors had filter updates available two days after Microsoft issued the MS05-039 patch Aug. 9.

"Patching is faster since 2003; we saw the typical large enterprise get down to five business days to patch 95% of their machines," Pescatore says. "But since there hasn't been a major worm in 18 months, we saw a lot of enterprises slack off." He also noted users were slow to patch internal Windows 2000 servers.

In fact, statistics from Web analytics firm Netcraft show that the Zotob outbreaks were internal. Netcraft, which collects statistics on Web site traffic, says the U.S. Fortune 100 Web sites showed no "unusual outages, including the 18 companies in the index hosted on Windows 2000." The company also says Britain's FTSE 100, with 36 sites running on Windows 2000, showed "no suspicious performance problems, either."

The worms spread using TCP/IP port 445, which is associated with Windows file sharing, and took advantage of the plug-and-play system bug to seize control of the operating system. Infected computers were then told to await further instructions on an Internet Relay Chat channel, meaning that they could then be used to attack other systems, according to Johannes Ullrich, chief research officer with the SANS Institute.

Some experts say that while the Zotob spread was low, there might be another storm brewing because the variants are beginning to attack each other.

"Analyzing the code of the variants, there seem to be three separate families of virus writers," says Eric Yoshizuru, product manager for security vendor Panda Software. "It could be the start of a virus war, but we don't know that for sure right now." Last year, 60 variants of worms emerged over three months in a virus war between Netsky, Bagle and MyDoom.

Yoshizuru says worm writers try to one-up each other in a game that plays out on vulnerable desktops and servers.

"The Zotob.D author seems to be a different writer from the A, B and C authors, and one of the characteristics of the D virus is it will shut down the other Zotobs that are running."

The IDG News Service contributed to this report.

Tool of the trade

Microsoft has a free tool to remove the Zotob worm after users deploy the MS05-039 security update. It's available at www.networkworld.com, DocFinder: 8558.

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Smartphone
continued from page 1

the first smartphones it has designed specifically for corporate use. While Nokia created a VPN client, had Symantec develop anti-virus software and Pointsec for encryption for smartphones, users say that's not enough because wireless PDAs must support remote management to meet many corporate security policies.

"Few wireless PDAs meet our security requirements right out of the box," says Tamara Box, consultant with the U.S. Department of Veterans Affairs, which has seen rising use of wireless PDAs in the last year among healthcare staff.

She assisted in rolling out the department's Research in Motion BlackBerry and wireless handhelds based on Microsoft's Pocket PC and the Palm operating system. But to meet federal guidelines for use of wireless, she needed to find a way to make sure they could be remotely managed and wiped clean, that data would be encrypted using 140-2 government-approved encryption, and that some features, such as cameras, could be restricted. She ended up adding Trust Digital's Mobile Edge Security software designed for PDAs.

Hungary-based Laszlo Kovari, the IT security and audit manager for the Central Europe division of bottling company Pepsi Americas, is in a similar struggle to ensure that the wireless PDAs used in his region for sales forces follow the same corporate security guidelines set for laptops.

He says he added Trust Digital to the Palm Tungsten PDAs that salespeople use for the purposes of remote management and security. "You should be able to expect the same level of protection on a PDA as a PC to align these with corporate security policy," Kovari says.

"Device management is proving to be a difficult problem," says Haig Coulter, senior product manager at Nokia, noting there's no software designed for central management of the Nokia smartphones.

"It's a classic example of technology getting ahead of security," says Andrew Storm, information technology director at security firm nCircle, where employees are prohibited from transferring corporate data to wireless PDAs because of security concerns.

Storm says wireless PDAs — the BlackBerry is an exception — often lack central management and don't often have the security software the firm prefers, such as PGP encryption.

On the other hand, Mike Murray, director of vulnerability research at nCipher, likes the 4-G Palm LifeDrive he recently bought. It supports Bluetooth and Wi-Fi, and he wants to use it as an alternative to his laptop.

Another smartphone corporate contender is Motorola, which early next year expects to ship the Moto Q, based on the Windows Mobile 5.0 operating system, announced in May.

IDC analyst Kevin Burden says Microsoft has designed Mobile 5.0 to make it easier to get mail from Exchange Server 2003 to a wireless device than can be done with Microsoft's Pocket PC operating system for handhelds.

"They want to be able to compete with RIM with full management controls, including security policy," Burden says. However, Burden is skeptical that Mobile 5.0 will allow businesses to forgo using specialized wireless synchronization middleware, such as the Intellisync Afaria Server.

Until now, individuals bought most wireless handheld devices, which might have been used for business reasons but weren't necessarily managed by the IT department, Burden says.

Manufacturers of the new smartphones, which began to appear about a year ago, are attempting to entice organizations into buying in bulk. "This is where the next growth market is," he says.

In some organizations, particularly hospitals, wireless PDAs have become as important as desktop computers, because these mobile devices run critical applications.

Carla Maslakowski, vice president and CIO at Northeast Regional Medical Center outside of Houston, says the hospital's staff uses the PalmOne Treo 650 Smartphone running the Patientkeeper application to record patient data and diagnostic test results. Information is transmitted directly to the hospital's back-end database application, QuadraMed.

"We do lab and X-ray results and prescription and billing applications," Maslakowski says. "Security is an issue, and so is the memory capacity of the device," which the hospital is upgrading. Maslakowski says the Treo 650 is set up to use an encrypted link when doctors use them for remote access.

St. Luke's Family Health, in Boise, Idaho, has used the eClinicalWorks application on Toshiba Tablets for eight months so doctors can record patient data and send prescriptions electronically.

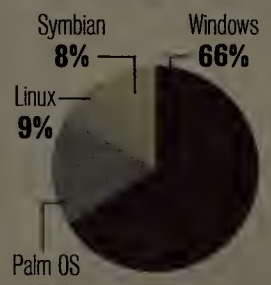
"I can add a digital signature ... to the prescription," says Dr. Bill Crump, a physician who says use of the wireless PDA has helped the organization's efficiency.

Erik Goldof, IT systems manager at HoneyBaked Ham in Norcross, Ga., says his firm is open to the idea of corporate purchases of smartphones, but the security and management to control them have to be there from the start. "They're very portable and can easily be misplaced," Goldof says. ■

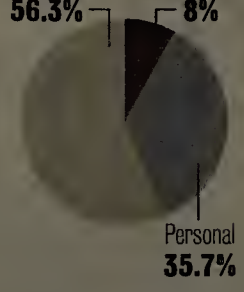
Mobile users

A recent survey by Insight Research, sponsored by Symantec, took a snapshot at the current smartphone arena.

Which operating system does your smartphone run on?



Do you use the phone for work, personal or both?



Total responses: 300

SOURCE: INSIGHT RESEARCH, SPONSORED BY SYMANTEC



Nokia's 9500 Communicator is aimed squarely at corporate customers.

StorageTek enhances service designed for healthcare industry

BY DENI CONNOR

StorageTek this week is expected to announce an expanded remote managed storage service that relieves IT personnel of some of their more burdensome responsibilities.

StorageTek's Remote Managed Storage (RMS) service for the healthcare industry will now include the ability to automatically move and migrate medical images in their Picture Archiving and Communications Systems (PACS) from one storage device to another in accordance with information life-cycle management practices set by the user.

RMS provides for the management of heterogeneous storage located in a customer's data center. Using hardware and software owned by the customer, StorageTek consultants work from their remote Storage Operations Center on a 24/7 basis to identify issues, troubleshoot hardware and software failures and address storage capacity problems before they affect the business, StorageTek says. As part of the service, consultants also perform storage and tape backup and data restoration, as well as disk and volume management and capacity utilization.

Chris Petillo, director of PACS at New York University Medical Center, uses StorageTek's RMS. Before deploying the service Petillo experienced downtime and problems with archiving data.

"The good news was that the archiving didn't go down often; the bad news is that if it did go down, it was on Saturday after-

StorageTek, page 86

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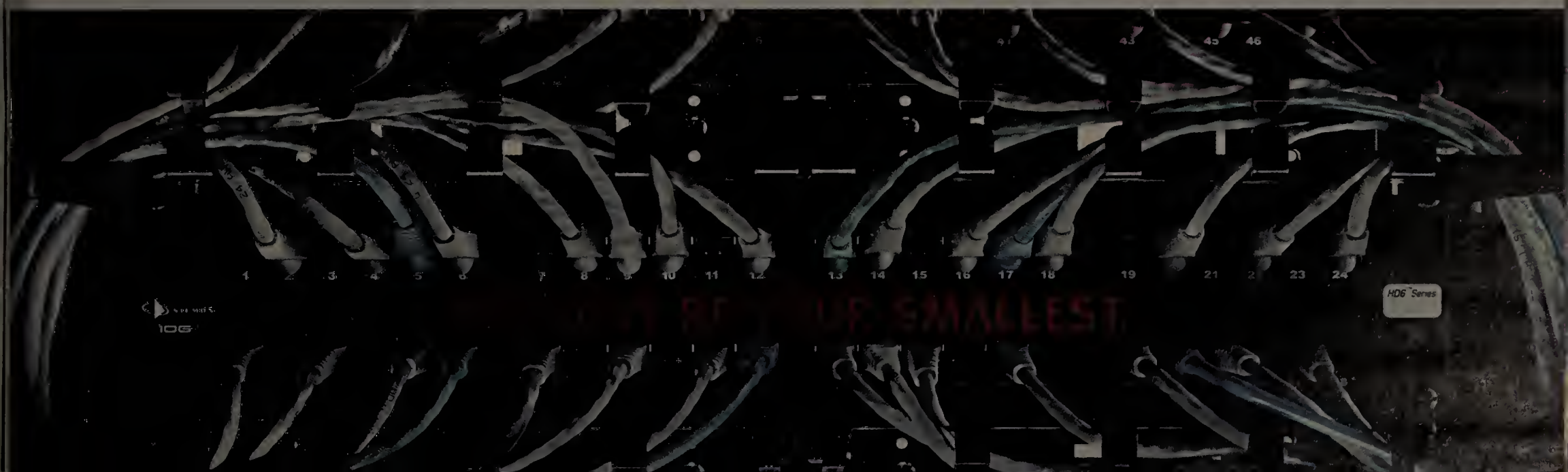
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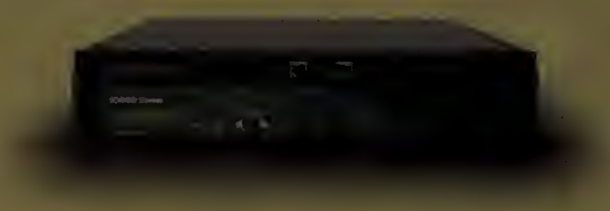
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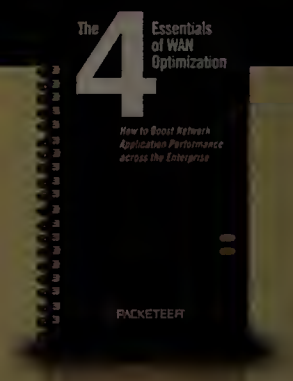


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MONDAY, OCTOBER 24

Registration Open 8:00am - 8:30pm

9:30am – 11:30am	Primer and Tutorial Tracks
11:30am – 1:00pm	Luncheon
12:00pm – 5:00pm	Pre-Conference Golf Outing
1:00pm – 5:00pm	IDC Analyst Briefing
1:00pm – 5:25pm	SNIA Technical Tutorials
4:40pm – 6:30pm	End User Town Hall Meeting
5:00pm – 7:00pm	Speed Dating with IDC: A Channel Partner Networking Event at SNW
7:00pm – 9:00pm	Welcome Reception

TUESDAY, OCTOBER 25

Registration Open 7:00am - 8:00pm

7:00am – 8:00am	Breakfast
8:00am – 12:30pm	General Conference Sessions
12:45pm – 2:00pm	Luncheon
2:10pm – 5:40pm	Concurrent Sessions (IT End-User Case Studies, SNIA Technical Tutorials, Deployable Solutions Tracks)
5:40pm – 8:40pm	Expo with Dinner and Interoperability & Solutions Demo

WEDNESDAY, OCTOBER 26

Registration Open 7:00am - 7:30pm

7:15am – 8:15am	Breakfast
8:30am – 12:15pm	General Conference Sessions
12:15pm – 2:00pm	Expo with Luncheon
12:15pm – 7:15pm	Interoperability & Solutions Demo
2:10pm – 5:40pm	Concurrent Sessions (IT End-User Case Studies, SNIA Technical Tutorials, Deployable Solutions Tracks)
4:00pm – 7:00pm	Expo Open
7:00pm – 9:30pm	Gala Evening with Dinner and Entertainment

THURSDAY, OCTOBER 27

Registration Open 7:30am - 10:30am

7:30am – 8:30am	Breakfast
8:30am – 12:00pm	Concurrent Sessions (IT End-User Case Studies, SNIA Technical Tutorials, Deployable Solutions Tracks)
12:00pm	Conference Concludes

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Attendee Profile: This section MUST be completed by IT End-Users and Channel Partners/Integrators/Consultants only (optional for all other registrations) in order to process your application.

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- ❑ Manager/Other IT Supervisor
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BUSINESS MANAGEMENT
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- ❑ CFO, Controller, Treasurer
- ❑ Executive VP, Senior VP, VP, General Manager
- ❑ Director, Manager
- ❑ Other Corporate/Business Manager

Number of employees in your entire organization (ALL locations)
- ❑ 20,000 or more
- ❑ 10,000 - 19,999
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ 50 - 99
- ❑ Less than 50

What is your organization's annual IT/IS budget for all IT/IS products?
- ❑ $1 Billion or more
- ❑ $500 Million - $999.9 Million
- ❑ $100 Million - $499.9 Million
- ❑ $50 Million - $99.9 Million
- ❑ $10 Million - $49.9 Million
- ❑ $1 Million - $9.9 Million
- ❑ $500,000 - $999,999
- ❑ $250,000 - $499,999
- ❑ $100,000 - $249,999
- ❑ Less than $100,000

What is the estimated annual revenue of your entire organization?
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

What is the one item that best describes your involvement in the IT purchase process?
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Would you like to receive information about playing in the golf outing on Monday, October 24th?
- ❑ Yes
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Please send cancellation requests via email to: snwreg@computerworld.com

Carriers bolster e-mail, DSL services

BY JIM DUFFY

Business customers last week got a raft of new carrier services aimed a reinforcing e-mail, DSL support and hosted IP offerings.

First, BellSouth unveiled offerings for its FastAccess Business DSL service.

The products include Business Domain Email, shared Web hosting and business-class support.

Business Domain Name Email lets customers who purchase a FastAccess Business DSL product be eligible to receive a free new domain name and custom e-mail account such as sales@mygrowingbusiness.com. Customers will have the ability to purchase additional custom e-mail accounts individually or in a package, BellSouth says.

Shared Web hosting allows small-business customers to economically expand their visibility and reach by building a Web presence for online commerce and customer communications, BellSouth says.

Packages start at $7.95 per month and provide options for bandwidth and disk space. E-commerce features also are available for businesses to take orders online.

Shared Web hosting services receive continuous network and technical support from BellSouth, the carrier says.

Business-class support provides premium services for business DSL customers. This includes a 24-hour repair guarantee, and a continuous dedicated business technical support desk.

Customers can receive a credit for every day they are out of service more than 24 hours plus an additional 10% of their monthly charge.

These services follow last month's rollout of an Internet security suite of products for residential and business DSL customers.

Meanwhile, MCI is adding DSL service to its enterprise access offerings in six more markets, including China.

The company offers DSL as a less-expensive alternative to dedicated leased lines and other forms of data access, aiming primarily at smaller branch offices of multinational companies, as well as back-up connectivity to offices that have a leased line or other access, says Myles Gene Kearon, MCI's global business partner manager. The carrier is trying to make DSL available in as many countries as possible, he says.

DSL was newly available last week in Thailand, the Philippines, Israel and Hong Kong. It will be available in China and Singapore next month.

In China, MCI will provide Asymmetric DSL (ADSL) through partner China Network Communications Group Corp. (China Netcom), China's second largest fixed-line telecom carrier. The service will be available in most major metropolitan areas across all provinces and will offer a downstream speed of 512K bit/sec and an upstream speed of 128K bit/sec, according to MCI.

Pacific Internet Ltd. is MCI's partner for DSL in Thailand, the Philippines and Hong Kong. In those countries, speeds will vary. In Israel, MCI is working with Golden Lines, offering DSL services ranging from 64K bit/sec to 1.5M bit/sec. MCI also plans to offer DSL in Malaysia and Peru over the next several months, the company says. In Singapore, as in Australia and some other countries, DSL will be provided by local MCI operating companies, Kearon said.

MCI also offers a DSL option in the U.S. and in Belgium, France, Germany, Italy, the Netherlands, Spain, Sweden and the U.K.

Finally, XO Communications and NEXL Network Systems have announced that they will partner to offer businesses managed hosting services.

The two companies will offer services combining XO's data centers and IP network with NEXL's managed infrastructure computing services.

Under a multiyear agreement, XO and NEXL will co-market and sell each other's services through XO direct and indirect sales channels and NEXL's direct sales force. NEXL becomes the provider of managed services to XO managed hosting customers, and XO becomes a preferred provider of data center and network services to NEXL customers.

The services will be targeted at new customers looking to outsource the hosting and management of their Web-based applications. Customers will be hosted within XO data centers connected to the XO IP network.

NEXL will design, implement and manage the application, security and storage services.

The IDG News Service contributed to this story.

EMC to acquire NAS virtualization vendor

BY DENI CONNOR

Looking to help customers manage an ever-increasing number of storage devices, EMC last week announced that it would acquire Rainfinity in a deal valued at "less than $100 million."

Rainfinity makes software that virtualizes and then manages the file resources stored on network-attached storage (NAS) devices. Rainfinity's RainStorage combines file virtualization with specific modules focusing on information life-cycle management (ILM), capacity and performance utilization. The product allows IT administrators to identify, analyze and resolve performance, capacity and usage bottlenecks, and it works across Microsoft's Common Internet File System and the Unix/Linux Network File Systems.

EMC says that as the use of NAS systems grow in midsize and larger companies, managing them and controlling the resources on them become more difficult. Moving and migrating data among systems based on its value to the business also is an often-complex manual activity.

"With the addition of Rainfinity, EMC is extending the benefits of virtualization to EMC and non-EMC NAS environments to enable more comprehensive information life-cycle management solutions, better resource management and overall operational improvement," says Howard Elias, EMC executive vice president of corporate marketing and the office of technology, in a statement.

Analysts have applauded the move.

"If EMC is serious about enterprise-wide ILM, rather than just point-product deployments, they needed a technology that could migrate data between storage tiers easily," says Stephanie Balaouras, senior analyst with The Yankee Group. "Rainfinity's RainStorage is an enterprise-wide solution that plays to core EMC NAS customers. This is for a company that has a proliferation of NAS filers and gateways with significant capacity requirements."

EMC's acquisition also will bring it into closer competition with NAS file vendor Network Appliance, which uses software from NuView to virtualize NAS resources. It is working to integrate into its products its acquisition of Spinnaker Networks, a NAS virtualization vendor.

EMC's march into NAS started almost 10 years ago, when the company announced its first NAS system, the EMC Celerra. Since then, EMC has broadened its NAS line with the introduction of a NAS gateway, which allows users to view storage-area network data from the network, NAS-based data migration software and a low-end Windows Storage Server, the EMC NetWin.

"EMC has been seeing very rapid growth in its NAS business since it started to address it energetically," Balaouras says.

According to IDC, EMC is the leader in NAS revenue, having captured almost 38% in the first quarter of 2005.

The deal is expected to close this month. EMC will run Rainfinity as a separate business unit, much as it does with VMware and Legato. Rainfinity's RainStorage software and RainWall security appliance will be available immediately. ■

EMC acquisitions

EMC has broadened its storage portfolio with the acquisition of systems companies such as SMARTS and VMware.

Company	Product	Amount	Date
Allocity	Software processing for managing and provisioning Microsoft Exchange.	$10 million	November 2004
Dantz Development	Back-up and recovery software for small and midsize businesses.	Less than $50 million	October 2004
Documentum	Enterprise content management software.	$1.7 billion	October 2003
Legato	Back-up and recovery software, e-mail and database archiving software.	$1.3 billion	July 2003
Maranti Networks	Replication, snapshot and data migration capability for its storage virtualization platform.	About $5 million	August 2005
SMARTS	Event automation and network systems management software.	$260 million	December 2004
VMware	Server virtualization technology.	$635 million	December 2003

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Eight pass Liberty's SAML interoperability test

BY JOHN FONTANA

The Liberty Alliance, which is developing models for the sharing of identities across corporate boundaries, announced last week that eight vendors have passed its first interoperability test based on an emerging identity standard.

The test focused on Version 2.0 of the Security Assertion Markup Language (SAML) standard and the Liberty Identity Web Services Framework 1.1 specification. Eight participants — The Electronics & Telecommunications Research Institute, Ericsson, Novell, Oracle, Reactivity, Sun, Symlabs and Trustgenix — passed the first interoperability test the Liberty Alliance has conducted for multi-vendor SAML 2.0 interoperability.

In February at the RSA security conference, 13 vendors — including Computer Associates, Entrust, HP, Oracle, RSA Security, Sun and Trustgenix — staged an SAML 2.0 interoperability demonstration that also involved the federal government and its E-Authentication Initiative. And in July, Burton Group staged an interoperability demonstration among 14 vendors using multiple protocols, including SAML 2.0, the Liberty Alliance specifications, the Shibboleth protocols developed for Internet2, and the WS-Federation protocol developed by IBM and Microsoft.

The bottom line, experts say, is that vendors are proving interoperability among real products just as early adopters are beginning to get serious about the technology.

In addition, the Liberty Alliance and Shibboleth are incorporating the SAML 2.0 specification into their work, and Microsoft is supporting the SAML token in its identity platform.

As part of the Liberty Interoperable Testing Program, each vendor must complete tests against scripts and various identity scenarios. Vendors must demonstrate interoperability with two other randomly chosen vendors participating in the event.

Roger Sullivan, chair of Liberty's interoperability program, said the vendors completed nearly 97% of a matrix that had every vendor testing against every other vendor.

"This is the first time we have been able to accomplish that thorough of a matrix testing process," Sullivan says. "The message is that we have a set of vendors that are ready to sell products. The other part of the message that is not so apparent is how smooth this test ran."

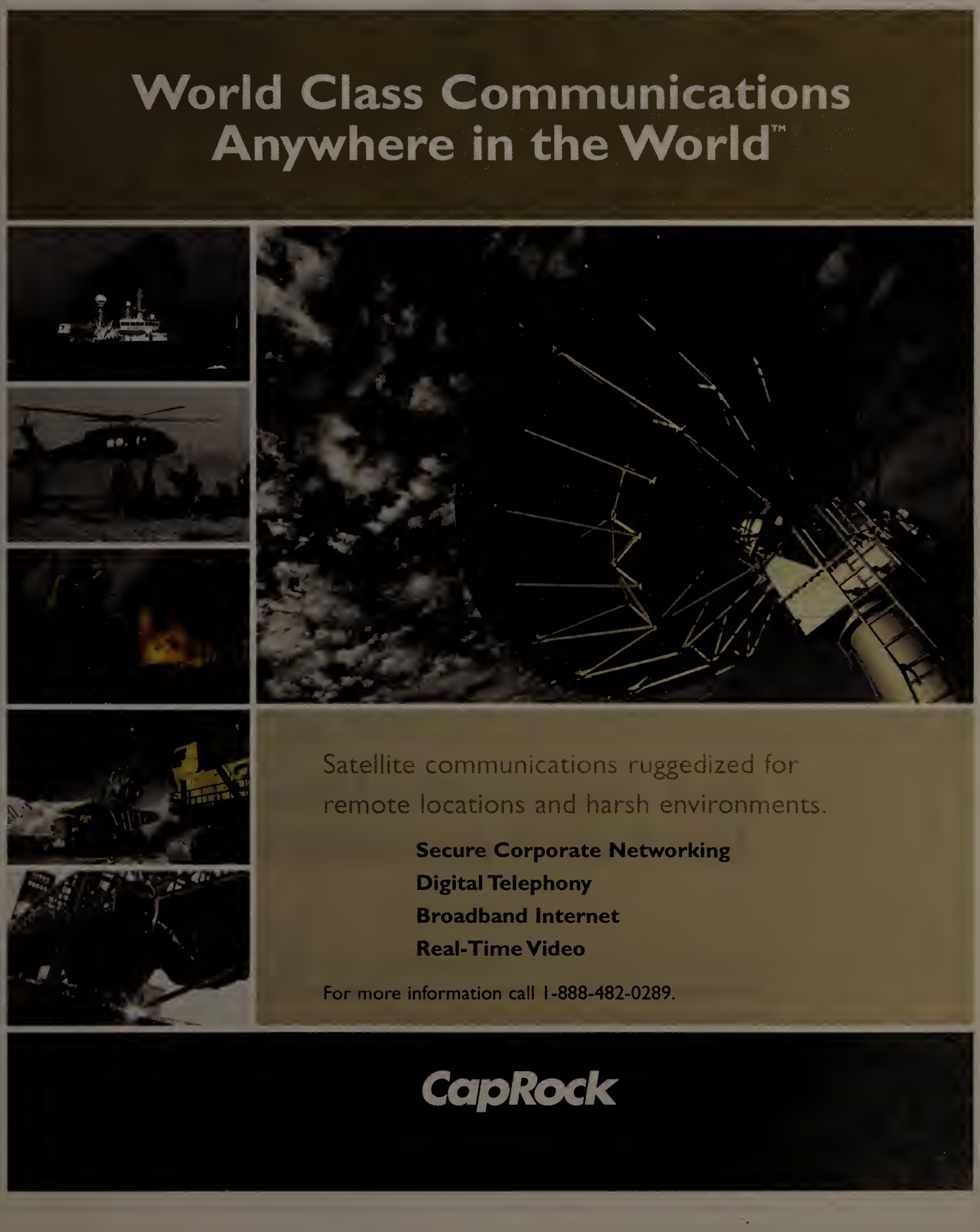
The IEEE's Industry Standards and Technology Organization conducted the test July 25-29. The Liberty Alliance plans to hold the next test in November in Tokyo. ■

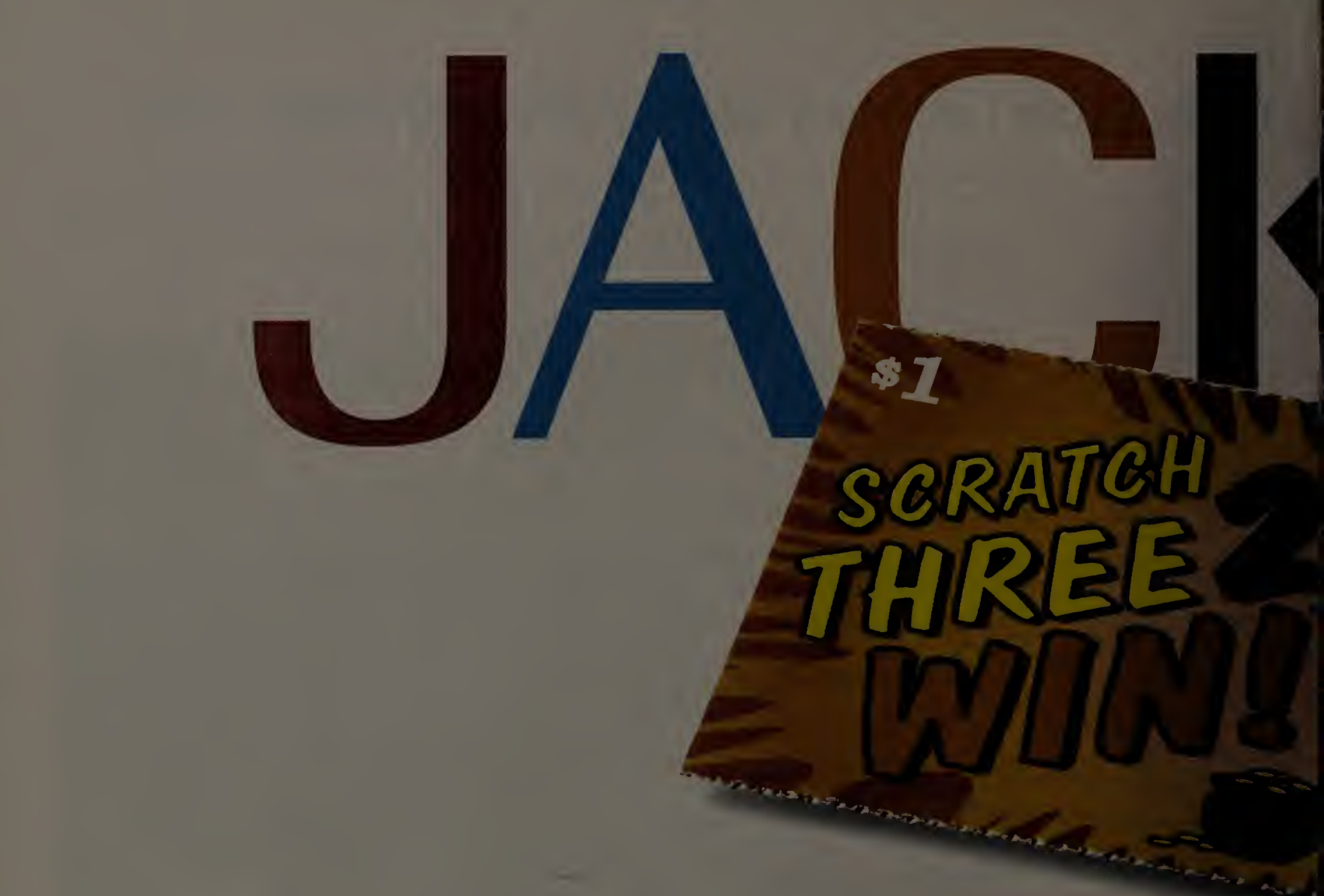
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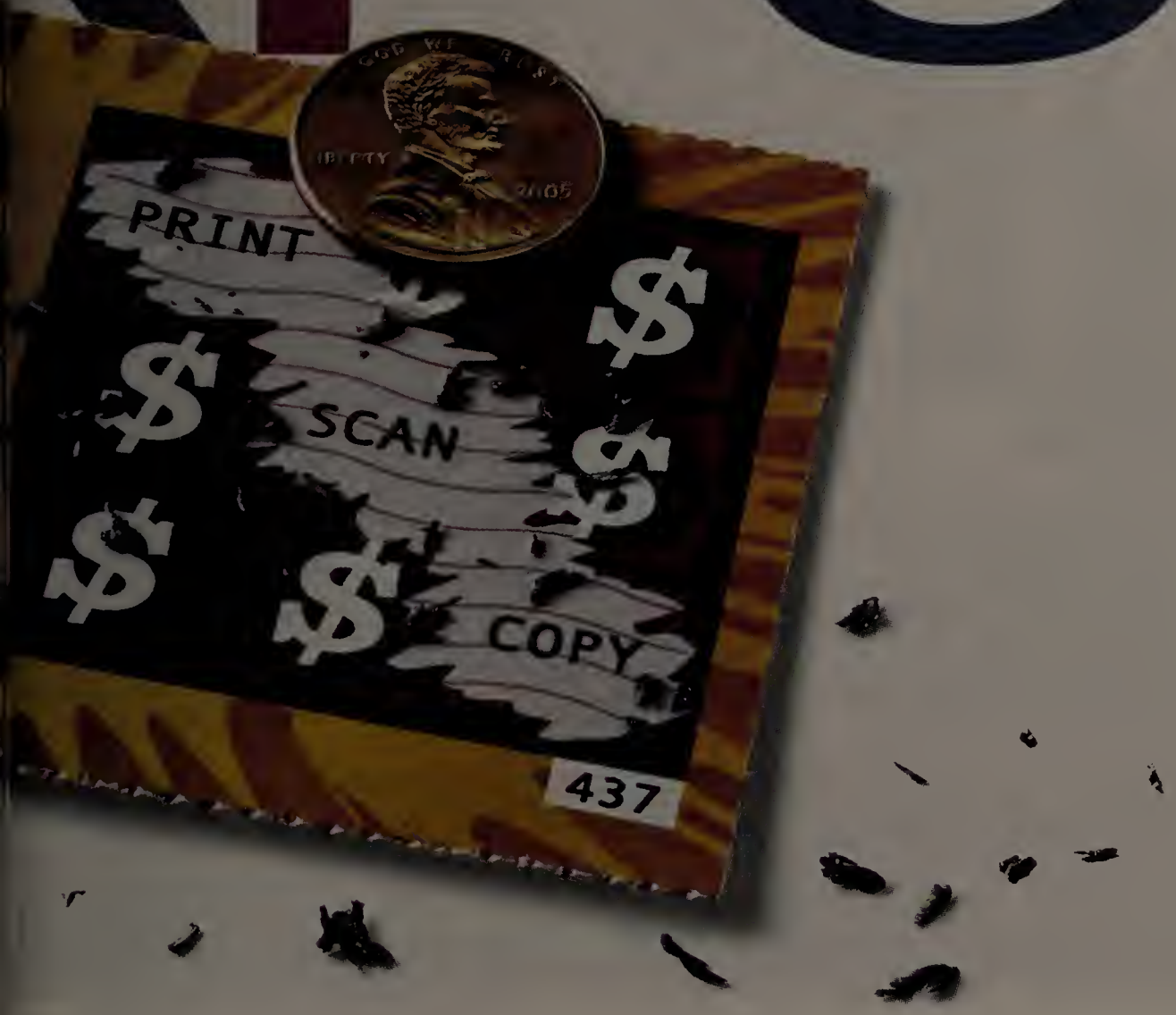
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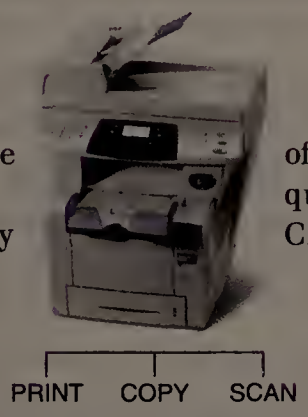
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Short Takes

■ **Foundry** and **Myrinet** plan to announce a partnership this week, through which the switch vendor and the maker of high-speed interconnect products will jointly sell, support and develop products for 10G server connections. Myrinet's 10G Ethernet network interface cards, based on the PCI Express bus standard, are being certified for interoperability on Foundry BigIron and RX switch products. The partnership could also result in development of technologies that allow servers with Myrinet 10G NICs to be more easily managed and to send traffic more efficiently over Foundry-based LANs, the two firms said.

■ **Webroot Software** last week announced **Spy Sweeper Enterprise 2.5**, an updated version of its anti-spyware software that cuts the file size of updates that are necessary twice a week from 2M bytes to 1M byte. Webroot also says it is working on eliminating the need to download the entire signature file each time so that only new spyware signatures will have to be downloaded. That capability, now being tested in the consumer version of Spy Sweeper, is expected in the enterprise version in the coming months. Webroot also has added a Web-based central management console to Spy Sweeper Enterprise 2.5, as well as reporting capabilities to show spyware trends. Spy Sweeper Enterprise 2.5 costs $15.28 per seat for a 1,000-node deployment.

■ **GreenBorder** has announced an updated version of its **GreenBorder Professional** software for protecting Windows-based desktops from the impact of unauthorized downloads from the Web, including spyware and adware. GreenBorder Professional 2.7, which costs $39 per seat, can now work without conflict with anti-virus and desktop firewall software from McAfee, Symantec and Trend Micro.

Q&A F5 CEO talks Layer 4-7 growth



F5 has seen its share of market churn over the last half-decade — the telecom/dot-com boom and bust, the doldrums of 2002-2003 and the recent resurgence of the application acceleration market. Now the vendor is feeling the squeeze from new competitor Juniper and a resurgence in application switching focus from old competitor Cisco. F5 CEO ***John McAdam*** *recently spoke with* Network World *Senior Editor Phil Hochmuth about where the vendor stands in the ever-shifting Layer 4-7/application acceleration market.*

How do you foresee the shake-ups in the acceleration market affecting F5 down the road?

If you look at fiscal 2004, we grew sales by 48%. That performance has attracted some larger competitors. We've seen Juniper make some moves with its Redline and Peribit acquisitions, and Cisco has been making some noise with its Application Oriented Networking launch. Overall, it makes our market more competitive. But it gives us opportunity because it makes the market as a whole more visible and creates opportunities that weren't there before. From that perspective it helps us.

Where is the growth in the Layer 4-7 market?

It's very much in enterprises and growing service providers. Finance and healthcare are big vertical markets for us. But any big company that has applications going out on the Internet, which is most Fortune 500s, whether they're running SAP or Siebel. Mobile is also a big part for us. Telco has gone from 10% to [18% to 20%] range for us. That's mainly from mobile. Anything service that has content being passed across the Internet, we play into that. We link the Internet world to the mobile world. Some of our partners are Huawei in China, Ericsson and Siemens mobile. They embed our products in their solutions.

With traditional network vendors — Cisco and Juniper — getting more serious about application acceleration, are you worried that acceleration features — Layer 4-7, as well as compression and offload — will just become functions of routers and switches?

We believe that you can do acceleration work in switches and routers, but it tends to be very limited in its features set. The more sophisticated you get, with encryption of data,

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Infoblox offers net authentication

Company upgrades appliances with software to lock down network access.

BY DENISE DUBIE

Infoblox last week added an application to its product portfolio that will help IT managers scan and approve devices before letting the machines access their networks.

Infoblox Authenticated DHCP is an add-on application for the company's DNSone module that runs on Infoblox appliances. The rack-mounted appliances are installed near DNS and DHCP servers in customer data centers and process queries for DNS, DHCP, RADIUS and Lightweight Directory Access Protocol.

The new software will equip the appliances with capabilities that could deny network access to unauthenticated devices and protect the network from potentially infected machines. Authenticated DHCP will quarantine desktops, laptops and other devices before authenticating the machines and granting or denying them network access, Infoblox says.



Infoblox's DHCP Authentication application equips the company's Infoblox-1200 and -1000 appliances with network access control capabilities.

Chris DeWitt, network administrator assistant at Oakwood College in Huntsville, Ala., plans to use the application to ensure some 500 desktops and laptops don't threaten the network when students start logging on at the beginning of the semester. He has been using Infoblox appliances for one year to manage DNS and DHCP servers, and has tested the new software with intentions to roll it out in the coming weeks on the school's production network. DeWitt started using Infoblox when the college decided to move away from Microsoft DNS and DHCP servers because of viruses associated with the operating system. He looked into NetReg, a free DHCP registration system, but says he had a difficult time getting it up and running.

According to DeWitt, Authenticated DHCP can potentially prevent machines from gaining network access without reconfiguring his network or buying more equipment. But he would like to see more security features going forward.

"Right now I can see it helping us track the student PCs because it has a one-to-one

See Infoblox, page 26

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F5

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and application firewall types — that can slow a switch down. The switch's main job is to get packets through. We're convinced you need to do Layer 4-7 tasks right beside the server, right in the data center.

The XML acceleration market has received a lot of notice lately. How do you compare that technology to what F5 does? Or is this a subset of what F5 does?

We view XML acceleration as a subset of what we do. We've started introducing some XML parsing features. Frankly, XML data is still a small portion of the traffic that goes over the Internet. I think that needs to be held in context. But it's going to be a growing portion, as more apps talk to each other in XML. I see XML acceleration absolutely sitting in the traffic management area. Whether its XML or HTTP, we can secure it and optimize it. In our road map, we have more and more XML-focused capabilities coming. But just to look at XML is a mistake. You need to look at it as a subset of the overall traffic management solution you're installing.

What could F5 boxes be doing more of in the XML area?

It's all about how intelligently you can do XML parsing and security. You'll see us build in more intelligence so you can check XML data in a more granular fashion. It's all about granularity and intelligence in reading data, followed by building rules to control what happens with the XML data. For example, with SSL, we have SSL ASICs in our box. Our value add is the software that integrates with the SSL ASIC and manipulates the data, then re-encrypts the traffic. Over time we'll do that same kind of function on an integrated basis with XML traffic. Whether this will be done through partnering or through our [own R&D] remains to be seen. It will probably be a bit of both.

What is behind the push of moving tasks off of servers and into network hardware — such as security or protocol stacks or compression? How far will this go?

Three years ago, SSL was all being done in servers. Now it's typically done in our area. Compression is moving toward that. Now even authentication is moving down to our area. Not only are we doing SSL encryption and compression, but we're also taking application work off the servers.

The math is simple. We sit in front of 50 or 100 servers. Instead of doing a task 50 or 100 times, do it once on our box. That way you save yourself money and it's easier to manage and it tends to be faster. The trend will move a layer back toward the database, as well. You'll see devices like ours doing more, true application work.

Blade servers are being talked about a lot as the way new data centers will be built. Where does network intelligence reside if this is the way this plays out?

We saw this trend over a couple of years ago. It was obvious to us that blade servers over time will be significant in the overall data center spend. So we invested in putting our software on blades: It runs on Intel, so it can run in Dell and IBM blades, and so forth. But what we've seen in terms of customer demand is that when they go to a large blade server implementation, they still prefer to have our box outside the blade chassis itself. They want a product that not only does traffic management for that one chassis, but for a number of chassis. Our customers spent much more money on us with products that sit outside the blade chassis than inside. Adoption of products that work inside the blade chassis has been slow. There's so much added value in having a product outside the chassis. I think that trend will continue. ■

Juniper upgrades firewall/VPN modules

BY STEPHEN LAWSON, IDG NEWS SERVICE

Juniper last week beefed up its security offerings with faster and more-capable hardware modules for its high-end firewall and VPN platforms.

The company introduced the 8G2 and 2XGE Secure Port Modules for the Juniper NetScreen-5000 Series Firewall and VPN platforms. The modules can be plugged into current NetScreen-5000 Series platforms for a boost in throughput and better support for new network uses such as VoIP, Juniper says.

The introductions are the latest moves by Juniper to stake its claim in the network security market. They follow the company's rollout last week of SSL VPN hardware platforms for small and midsized businesses. Juniper acquired both the high-end and midrange platforms through its purchase of NetScreen last year.

A NetScreen-5400 platform fully loaded with three of the new modules can deliver 30G bit/sec in firewall mode or 15G bit/sec in encrypted VPN mode using Triple-DES or AES, Philip says. It can support 1 million concurrent firewall sessions and 25,000 VPN tunnels. The new modules also allow for secure use of delay-sensitive applications such as VoIP, streaming multimedia and data replication, according to the company.

Among the enhancements in the new Secure Port Modules are hardware acceleration of AES and the ability to handle jumbo frames, which are as much as six times the size of standard Ethernet packets and can improve throughput. A key component of the new modules is the GigaScreen3 ASIC, which can offload from the CPU intensive functions such as large multimedia and data file transfers, Juniper says.

The moves are expected to help Juniper compete more effectively with Cisco, Check Point and others.

The 8G2 Secure Port Module costs $65,000, including a full complement of eight Gigabit Ethernet transceivers for multimode fiber. The 2xGE costs $65,000 and can be equipped with two 10G Ethernet transceivers. A short-reach (990-foot) 10G Ethernet transceiver costs $3,000 and a long-reach (6.2-mile) transceiver costs $4,000. ■

Infoblox

continued from page 23

relationship with the IP and [media access control] addresses on the student machines," he says. "I'd like to be able to scan student machines for vulnerabilities and open ports in future releases."

The Infoblox products will compete primarily against Microsoft's Network Access Protection (NAP), which Microsoft is still developing, and the open source BIND application running on general-purpose servers. Other competitors include NetReg, SafeDHCP from MetaInfo and Lucent's VitalQIP.

The features provided with Authenticated DHCP would be most useful for large companies and can be installed without major hardware investment, says Daniel Golding, a senior analyst with Burton Group.

Authenticated DHCP is available at no extra cost with the Infoblox DNSone module, which runs on the Infoblox-1200 and Infoblox-1000 appliances. These are priced starting about $10,000. The 1200 is a higher-capacity, higher-performing appliance geared toward large companies. ■

Secure Computing acquires rival CyberGuard for $295m

BY ELLEN MESSMER

Secure Computing last week announced it had reached an agreement to acquire CyberGuard for approximately $295 million in a cash and stock transaction.

By acquiring its rival in the firewall and content-filtering arena, Secure Computing expects to see revenue escalate from about $110 million per year to $200 million, says Mike Gallagher, senior vice president of product development. While specific product and staff consolidation plans have not been laid out, Secure Computing sees some realignments that could result in possible product change and layoffs.

"There is overlap in some assets," says Gallagher, pointing out that Secure Computing's G2 Sidewinder firewall competes directly with CyberGuard's Total Stream Protection line of firewalls.

However, CyberGuard's lower-end SG line of firewall/VPN products is an area where Secure Computing doesn't compete.

In the area of Web filtering, Secure Computing has products that do outbound only, while CyberGuard's WebWasher is a stand-alone filter that also supports anti-virus and anti-spam efforts, Gallagher says. CyberGuard is said to have 21 million licensed seats for its Web-filtering product.

"We're going to offer all these products in the near term, but there are redundant capabilities here," he says. "There are going to be branding changes, and new products will almost certainly come out of it. But there's no road map yet."

Secure Computing has corporate staff of 380 and 14,000 customers. CyberGuard has 270 staff members and 3,000 customers. Gallagher says CyberGuard is more active in the European sales market than Secure Computing. Although no staff changes were announced, Secure Computing says the acquisition will likely result in some level of consolidation in duplicative administrative functions.

As part of the merger, global private equity investor Warburg Pincus intends to invest $70 million in Secure Computing in the form of convertible preferred stock with warrants, the firms announced. ■

ENTERPRISE COMPUTING

Short Takes

■ **JMR Electronics** last week unveiled an IP storage-area networking product called **Z-IPSAN,** which uses iSCSI to connect storage to Gigabit Ethernet networks. Z-IPSAN consists of 16 hot-swappable Serial ATA drives and as much as 8T bytes of storage in a 5.5-inch-high enclosure. The storage array supports RAID 0,1,5,10 and 50 for fault-tolerance and ships with management software that provides provisioning, clustering, snapshot and data replication capability. Z-IPSAN starts at $14,000 for a 450G-byte appliance.

■ **Crosswalk** last week launched a new version of its **Storage Manager 2.5** software for small and mid-size organizations. Crosswalk Storage Manager 2.5 supports HP Storage Works Enterprise Virtual Array, IBM DS4000 series arrays, Engenio and IBM's Enterprise Storage Server arrays and AIX hosts. It allows expanded search functions and the ability to discover devices across multiple domains. Storage Manager 2.5 also supports Linux; HP-UX; Solaris; Netware; Tru64; Windows 2003, 2000 and XP; and applications such as Microsoft Exchange, SQL Server and Oracle databases. It also supports Symantec's Veritas NetBackup and EMC's Legato Networker. The product starts at $5,000.

■ **HP** is reselling **Fibre Channel** host bus adapters from storage networking company Emulex across its entire family of blade servers. As users adopt the smaller-form-factor servers, they are increasingly interested in attaching their blades to storage-area networks, both companies say. Emulex has a similar host bus adapter agreement in place with IBM for its eServer BladeCenter servers. Given that today's blade market is largely a two-horse race between Big Blue and HP, Emulex is well positioned with a foot in both camps. The deal with HP is a non-exclusive OEM agreement. HP already resells host bus adapters from Emulex's rival QLogic Corp. with its blades.

Start-up builds wireless mesh net

BY JOHN COX

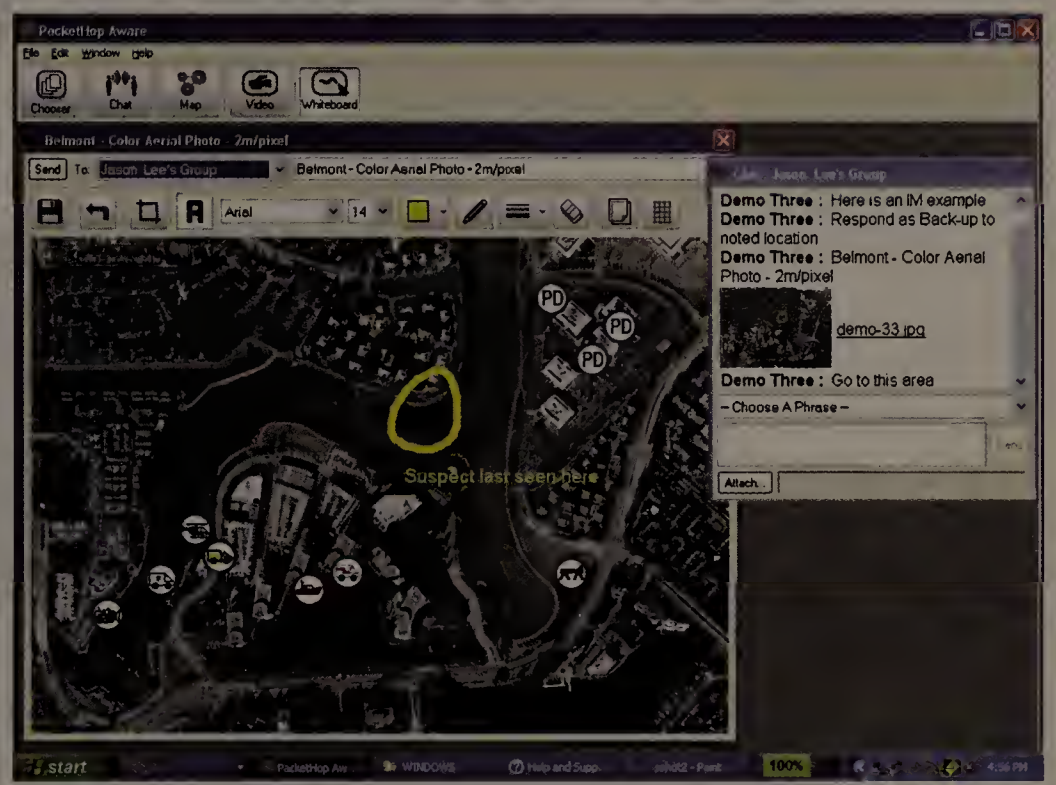
Wireless start-up PacketHop next month plans to release software that uses current wireless LAN adapter cards to create a peer-to-peer mesh network, without the need for conventional access points.

With PacketHop's TrueMesh software, users of Windows XP laptops and tablets can create an instant wireless network that dynamically routes data among the computers forming the mesh. It's as if each wireless device incorporated its own wireless LAN access point.

The Redwood City, Calif., company has been working on the product for nearly three years to further develop the mesh software, which PacketHop exclusively licenses from the original creator, SRI International. One change was to create a public-key infrastructure for managing digital certificates among mobile clients that might be constantly moving and reconnecting.

PacketHop also created a public-safety

See PacketHop, page 30



Users can create an instant wireless network with PacketHop's True Mesh software.

Nexsan launches secure compliance array

BY DENI CONNOR

Nexsan Technologies last week launched the first of its compliance and data retention devices that let IT professionals encrypt and store fixed content.

The Assureon appliance consists of Nexsan's relatively inexpensive Serial ATA drives combined with information life-cycle management and storage security software that the company acquired from AESign Evertrust in March. The Assureon appliance is designed for small and mid-size companies that want to be able to protect and retain data for compliance purposes.

"Nexsan did a nice job incorporating their Evertrust acquisition into the first release of Assureon," says Brad O'Neill, senior analyst with The Taneja Group. "The mid-market disk archival market is definitely heating up. It's nice to see the realization that midsize companies have precisely the same archival, compliance and security challenges as large companies."

The market for storage of encrypted reference data is growing. Gartner estimates that by the second quarter of next year, 85% of Fortune 1000 companies would encrypt their data at rest. The Enterprise Storage Group has said that the market for compliance-oriented storage products and services could be as much as $6 billion in four years.

Assureon connects to a Gigabit Ethernet network and lets IT professionals view information on storage-area networks (SANs), network-attached storage (NAS), file servers or IP SANs from a file-level interface. A rules engine included with the appliance lets IT professionals set policies that govern the retention and deletion of data.

As users create reference data, it is captured by the Assureon software and sent to the appliance. The Assureon appliance assigns metadata information, and encrypts and stores it.

The appliance is among the first to combine data encryption and content-addressable storage in a single device. While EMC's Centera has data retention capability, it does not encrypt data without the help of third-party software or appliances. Network Appliance recently acquired storage security vendor Decru and will integrate Decru's DataFort appliances with NearStor and other NAS devices. EMC recently announced that it also would resell Decru's appliances.

Nexsan also sells ATA and Serial ATA products. The ATAbaby is an ATA set of drives that supports as many as 1.2T bytes of storage capacity in a 1.75-inch-high box; the ATAboy2 consists of 14 drives for a maximum capacity of 5.6T bytes; the ATAboy2x has the same disk capacity but 340M bytes per controller and almost double the performance of the ATAboy2.

Further, Nexsan offers the ATAbeast, a drive subsystem that would be used for nearline storage, archiving or disk-to-disk backup. The company also sells the SATAboy, a serial ATA disk system with the same performance and capacity as the ATAboy2x, and the SATAblade, a Serial ATA 1.75-inch-high module with a capacity of 3.2T bytes.

Assureon performs AES-256 file-level encryption. It also provides authentication and write once read many functionality.

The appliance, which can scale to 42T bytes, starts at $12,500 per terabyte. ■

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WIRED WINDOWS

Dave Kearns

SCO OpenServer takes heat

I did trek to sin city for the SCO Forum a couple of weeks ago. While we did talk about legal issues a little bit, there's not much happening on that front outside of an odd Novell filing a month ago (www.networkworld.com, DocFinder: 8545).

What I did do in Vegas was to spend a couple of days talking to CEO Darl MacBride, Senior Vice President Chris Sontag, Senior Vice President Jeff Hunsaker, head of engineering (and newly minted CTO) Sandy Gupta, Chief Product Manager Erik Hughes and my favorite part of the company, the PR group led by Blake Stowell, ably assisted by Marc Modersitzki and Tia Henjy.

What everyone wanted to talk about was the recently released SCO OpenServer 6, the upcoming plans for the next version (dubbed "Fusion") and a major announcement in the mobile arena due late September.

OpenServer 6 is the latest incarnation of SCO's Unix host. I've watched it grow up since the days I tended a Xenix installation more than a dozen years ago. OpenServer 6 is by far the best host system SCO has ever turned out. It's a true rival to, and in many ways better than, Solaris, AIX, HP-UX or any other general purpose Unix installation. At the same time, it has to battle for space with SCO's own UnixWare 7 product. That's changing, though. Major steps have been taken to unify the code base for the two systems; hence, the "Fusion" project. The company hopes this will go into beta in about a year and ship toward the end of 2006 or perhaps the first quarter of 2007. Both Gupta and Hughes appeared confident that they could meet those targets.

I was also introduced to Tim Negris, who recently agreed to take on the job of senior vice president for marketing. In his long and varied career (he was Larry Ellison's head of marketing at Oracle), he spent a few years at IBM. I asked whether he had been involved in OS/2 marketing, and he said "no." That's too bad, because OpenServer 6, UnixWare 7 and the upcoming "Fusion" remind me of nothing more than the late, lamented IBM operating system – outstanding quality that no one was interested in buying.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

PacketHop

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collaboration application, a management console, and a software gateway that links remote PacketHop mesh networks over conventional WANs.

NICs based on 802.11 can communicate directly in what's called ad hoc mode, though typically wireless LAN clients communicate by connecting to an access point that is wired to a nearby Ethernet switch.

Several companies (see "Mesh Networks Winning Converts," www.networkworld.com, DocFinder: 8547) have introduced fixed access points that have two or more radios and routing algorithms to create an outdoor wireless mesh. These companies include BelAir, Nortel, Strix, and Tropos. Firetide and Strix have access points that can create an indoor mesh.

But PacketHop seems to be unique in creating what it terms a mobile mesh, which forms and reforms as wireless notebooks and tablets come within range of each other. These clients can also connect to any fixed conventional wireless LAN access point.

That means that police, fire and emergency crews are able to create an instant wireless network at any location. As more laptops and tablets are brought to the scene, the mesh algorithms can create more routes for video streams, text messages, and photos.

To maximize distances, PacketHop recommends the use of high-powered radio cards. Typically, these cards run at 30 to 50 milliwatts, but some cards run at 100 milliwatts or more.

A recent police department pilot also made use of directional antennas and a radio amplifier, both mounted in the squad cards. PacketHop executives say the higher-power 11b/g cards have a range of 1,000 to 2,000 feet, compared to typical indoor WLAN ranges of around 300 feet. In the pilot, the special antenna and amplifier boosted the range to nearly a mile.

Throughput in 802.11 networks drops in steps as the radios get farther apart. It declines as mesh clients route, or hop, through several radios to send or receive a message. PacketHop says its algorithms optimize throughput, so that after four or five hops, the throughput loss stabilizes at about 60% to 70% of what it was at the outset. Maximum throughput for the increasing popular 11g NICs is about 20M to 23M bits/sec, so users can expect something in the mid to high teens for a mesh with more than four or five hops.

The PacketHop software is expected to ship in September: Each client costs about $2,000; the management console with gateway software costs $25,000. ■

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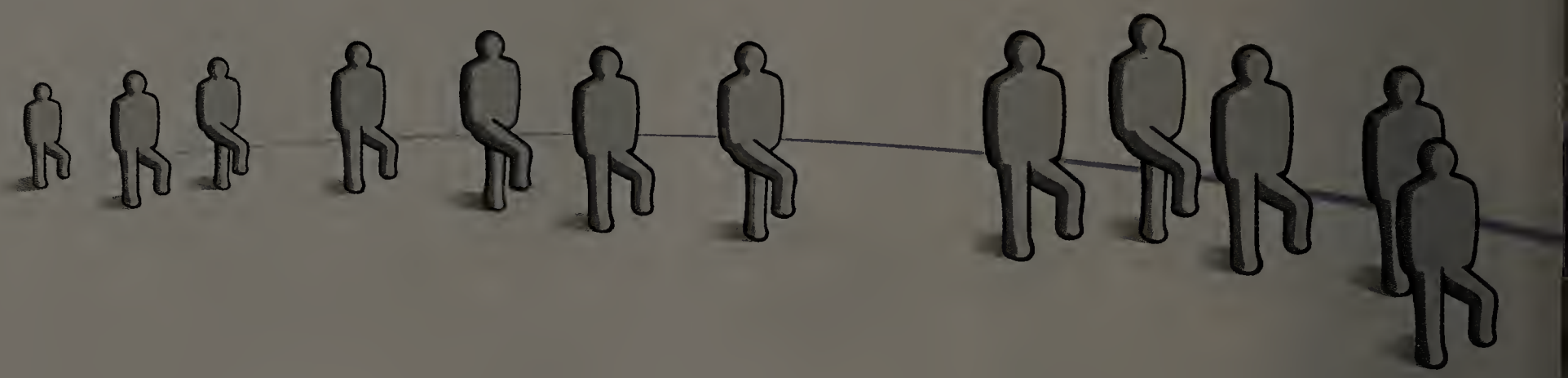
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Editorial supplement

August 22, 2005

The New Data Center

5th in a six-part series

Piecing together the next-generation IT architecture

SPOTLIGHT ON ADVANCED IP

- Destination: Advanced IP paradise
- IPv6: The missing link?
- Trouble in paradise?

Plus: Restaurateur Red Robin dishes up automated management, and more

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A view of the other pieces in the 2005 New Data Center series:



Destination: Advanced IP paradise

How two IT execs are plotting their way to an all-IP world.



LEO ESPINOSA

BY SANDRA GITTLEN

For IT directors, the new data center road map is clear: Head toward an all-IP network, complete with advanced IP applications such as real-time collaboration.

Already, companies are moving along the steppingstones to this all-IP place. Many have implemented voice and video over IP, and are turning out frame relay networks and other private links in favor of pure IP connections, such as provided via MPLS-based networks.

Two network leaders plotting their courses to the advanced IP paradise are Erik Durand, IT director for Costa Mesa, Calif., civil engineering firm Psomas, and Jim Klein, director of Information Services and Technology at Saugus Union School District in Saugus, Calif. Both were finalists in the Network World Renovator Awards earlier this year (www.networkworld.com; DocFinder: 8524).

For Durand and Klein, the goal is to achieve real-time collaboration with advanced IP applications and an all-IP network.

Engineered for advanced IP

In a perfect world, Durand says, the CAD/CAM drawings his users rely upon would be available from anywhere at anytime. "Our engineers would be able to collaborate on construction projects using whiteboard applications and videoconferencing over wireless LAN, cellular or satellite connections from a remote office, an on-site trailer or even a dirt mound," he says.

Today, he is laying the groundwork that will help him attain this network nirvana.

"As an engineering company, we work with large CAD files — 300M bytes to 500M bytes on average for each one," he says. "This wasn't a problem when we were a smaller company and everyone worked in the same office, but as we've grown — 20% per year over the last two years — we find we really need to share work across offices."

Durand already has swapped out his frame relay network in favor of an MPLS-based, fully meshed, pure-IP topography.

"The advantage is that we can have every-office-to-every-office connections, where before we had to pass through a main hub. We've lessened the number of hops, which will speed access to data," he says.

He also has consolidated file servers at the company's locations in Arizona, California, Colorado, Nevada and Utah to a handful of data centers equipped with Riverbed Technology's Steelhead file services appliances. These appliances allow real-time access and sharing of centralized data over the wide area.



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"We used to do offline file synchronizations overnight, but they were a day behind and were a nightmare to manage. Users would ask if they could share work across offices and we'd have to say 'no.' Now we can do it," he says. Another benefit has been the ease of file restores, which are frequently required because of human error, he explains.

See Paradise, page S6

A bumpy ride

IP veterans warn of hazards on the way to the all-IP utopia.

All-IP is a foregone conclusion at Ford Motor Co. "Really it's absolutely inevitable," says Vijay Sankaran, manager of enterprise technology for Ford's IT group in Dearborn, Mich. But all the pieces to the puzzle must be in place first, he adds.

Automakers, for example, have to "apply discipline of code development to IP-based devices" being embedded in vehicles, Sankaran says. Such devices send information on a vehicle's "health" to manufacturers and service providers over the IP infrastructure. The explosion of these IP-based embedded devices is putting tremendous pressure on IT groups. Software upgrades are difficult once a car has been sold, and defects due to software problems are on the rise across the auto industry, Sankaran notes.

"We grew up in a component-based world. Now we have to think about integration of these IP-based devices within products," he says.

Data management is another critical issue, Sankaran says. "With all these devices communicating, how are you going to manage that information? How will you capture that data and store it?"

While Sankaran worries about the management of software and data across the IP network, Chuck Yoke, director of business solutions engineering for a corporate network in Denver, says the connection layer itself is what will stand in the way of a network utopia.

"In an advanced IP paradise, I'd have true real-time collaboration from anywhere. For instance, I'd be able to use my BlackBerry to pull up an MS Word document and edit it or participate in a whiteboard session remotely," says Yoke, who is a Network World columnist (www.networkworld.com; DocFinder: 8525). "I'd never do that today because of the speed of my wireless connection. That's one of the biggest technology problems. You can put IP everywhere, but getting it into a usable infrastructure — that's going to be a challenge."

The problem lies with the carriers and their inability to guarantee a high-quality, end-to-end connection, Yoke says. "Carriers are going to have to set a standard for how quality of service will be delivered end to end in a ubiquitous way — that's not a technology issue, that's a political issue," he says.

As for the advanced IP applications, Yoke doesn't foresee problems. "The easiest part of this is the application layer. Web-based applications and Web services will enable us to put applications in an IP-anywhere environment," he says.

But enterprises should not expect to see the returns on IP everywhere overnight, Yoke cautions. "The value will come when you can eventually implement centralized and standardized infrastructure that will not only entail IP-related traffic like voice and data, but much more," he says. "By collapsing these disparate infrastructures and reducing headcount, you will drive the technology value."

— Sandra Gittlen



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Paradise

continued from page S4

The move to a consolidated all-IP network also has enabled Psomas to open new offices quickly, without a lot of gear and staff. In fact, Durand's 14-person staff has not increased even though the company has grown rapidly over the past two years to support 620 users.

"We can open new offices with minimal servers, a router, a switch, an appliance and a large pipe. We refer to it as an 'office in a box.' This means less real estate for a LAN room, less costs, and the ability to do remote management. This approach is enabling us to save money as a growing company," he says.

As a next step, Durand is evaluating IP storage-area networks (SAN) to complement the file services appliances. "The chief benefit will be cost savings," he says. IP SANs will allow Psomas to have less off-site storage. "Once we get the core system in place, then additional storage is cheap. We can do near-line backups and minimize the need for tapes. We'll also only have to send tapes off-site once a month rather than once a week."

While this vision of an all-IP paradise seems easy, Durand says obstacles stand in the way. He points to the high cost of Riverbed appliances — around $10,000 for a basic unit. "That's cost-prohibitive to put in every project trailer," he says.

The slow speeds of wireless cellular cards — a critical element of Durand's anytime, anywhere access vision — also frustrate him. "We've demoed cellular IP cards with an overlay VPN and the overhead was painful," he says. At 100K to 300K bit/sec, the cards were too slow for the company's large files. He's excited about the emerging EV-DO cards carriers are touting to have speeds up to 2M bit/sec, but is waiting for them to have a larger coverage area.

School daze

While Saugus Union's Klein doesn't need to provide advanced IP on dirt mounds like Durand wants to, he does want to deliver it to wherever the user might be.

"For us, collaboration means not having to gather all the students in a single room for a presentation — that's a hassle, and it takes time," Klein says. "With an advanced IP network and applications, we can broadcast a presentation to the whole school in their individual rooms. This saves time and opens us up to a larger pool of presenters." Some speakers, he says, are more comfortable addressing smaller groups, such as a single class. In such cases, he can broadcast the presentation in real time to every room.

Klein also wants teachers to be able to communicate with each other and faculty without leaving the classroom.

To facilitate these and other collaborative opportunities, Klein has made great strides toward an all-IP network equipped with VoIP, wireless networks and video. He started two years ago by rewiring the district, which includes 16 elementary, middle and high schools, "for a next-generation network." Power over Ethernet technology, for data centers, gives him the ability to easily roll out wireless access points. "We tried to make the platform as flexible as possible," he says.

Klein installed 700 TV sets in classrooms district-wide that are controlled over the IP-based network via a media retrieval system that allows for the uploading and broadcast of presentations and teaching tools. "The TVs are grouped by grade level and we can control changes in volume and channels over a central server system," he says.

However, each school's TV network remains an island. Extending this media retrieval system to the wide area is one step on the way to the advanced IP paradise Klein envisions. Once his vision is recognized, schools will be able to share broadcasts with each other. One obstacle to this goal, he says, is the need for special software at each client workstation — a cost he says is too steep.

Klein also has outfitted Saugus Union classrooms with VoIP capability — 700 IP phones have been placed throughout the district. "Our school sites didn't have traditional phone service to all the classrooms so this is a big benefit," he says.

The cost of a traditional PBX system to support the entire district vs. the cost of his 3Com VoIP network with features such as unified messaging wasn't that much different, he says. "But the PBX system couldn't touch the flexibility and performance you have with the voice over IP network. You can route all calls over the WAN links and that saves you money," he says.

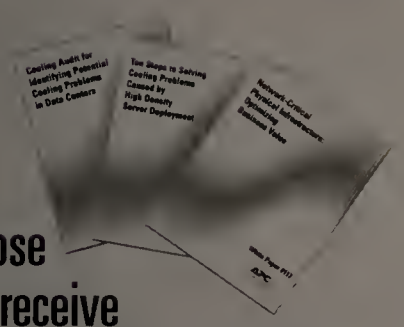
A big bonus he sees with VoIP and an all-IP network is the ability to quickly bring new sites online. "We are a growing district with lots of construction going on. We don't have to call 'Joe's Cable Company' to get new phone and television service up and running at each location; we can do it ourselves. That's a big plus," Klein says.

Eventually, Klein would like to blend VoIP and wireless for anywhere, anytime access. "Everyone would carry around their phones on their hips and be able to access the VoIP system over wireless," he says. And that, no doubt, would be a paradise for many users.

Gittlen is an editor in Northboro, Mass. She can be reached at sgittlen@charter.net.



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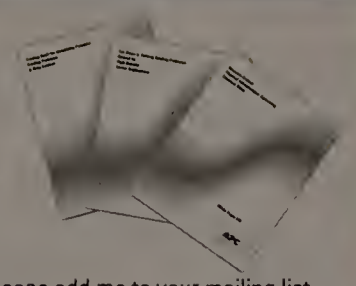
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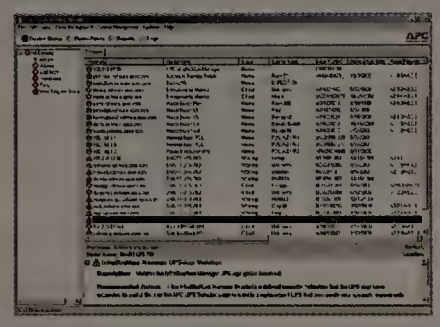
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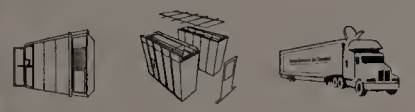
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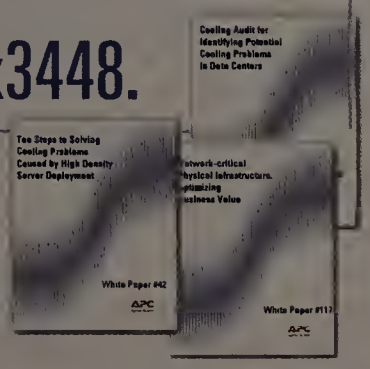


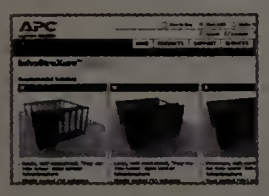
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SPOTLIGHT ON ADVANCED IP

IPv6: The missing link?

The question goes unanswered for most IT execs considering advanced IP application deployments.

BY SANDRA GITTLEN

As advanced IP applications make their way onto corporate networks, researchers and service providers hope to see a corresponding move to IPv6, the long-suffering replacement to IPv4.

Yet pilot projects aimed at proving IPv6's mettle haven't shown how the protocol can propel businesses to a paradise full of advanced IP applications. Application work has been secondary to infrastructure tests.

At the Moonv6 test bed, for example, researchers have conducted detailed tests of the IPv6 routing protocol and the Point-to-Point Protocol over Ethernet but have not yet tackled advanced applications, says Ben Schultz, managing engineer at the University of New Hampshire Interoperability Lab, in Durham. UNH administers the Moonv6 test bed, which is a collaboration among the Internet2 university consortium, the North American IPv6 Task Force and the U.S. Department of Defense. IPv6, developed by the IETF, touts IPSec and simple administration for tight security and, with its 128-bit address space, supports an almost unlimited amount of uniquely identified systems on the Internet.

While Schultz acknowledges a lack of advanced application development geared toward IPv6 today, he says he's looking forward to testing real-time collaboration tools and other applications to show how IPv6 will perform. Application work at the Moonv6 test bed to date has centered on running streaming media unicast and multicast applications across the network, he says.

Lessons learned and deployment tips from advanced application testing might help turn the tide for IPv6 adoption in business, where the protocol is still seen as a down-the-road technology.

"We've done some research on IPv6," says Vijay Sankaran, manager of enterprise technology for Ford Motor's IT Group in Dearborn, Mich. "But it's still undetermined where the protocol will play."

IPv6 is "more efficient for the routing of messages and being able to know who your endpoint address is," says Sankaran, a member of the IPv6 Business Council. But, he adds, "everything we do for our business needs a core driver. And one thing we've been struggling with is that while this packet header can have additional information on it, we haven't found the applications that would have us invest money to go to an IPv6 network."

With limited resources, Ford would rather focus on rolling out a comprehensive wireless fabric around the campus, he says. That has a much higher value potential in the short term than IPv6, he adds.

IPv6's unlimited addressing would have worked well for Saugus Union School District as it rolled out VoIP, says Jim Klein, director of Information Services and Technology for the Saugus, Calif., organization. Network Address Translation (NAT), used to assign IP addresses to the VoIP phones, gets tricky when calling outside the organization, he says. With IPv6, each IP phone would have a unique address that would expand the capabilities of the VoIP system. Yet rather than working with IPv6, Klein created a suitable workaround for the problem.

Ultimately, such a workaround won't be an option. True advanced IP networks require IPv6, Klein says.

Phil Edholm, CTO and vice president of network architecture for Nortel's enterprise division, says: "Some applications, like voice over IP, just don't have the ability to do port mapping, so having individual IP addresses is important." Real-time collaboration, such as presence-aware instant messaging for employees, will require IPv6. "What's going to drive IPv6 is the need for constant connections. You can't have NAT in the middle."

Minus compelling evidence on application performance, that leaves IPv6 as a natural progression for many IT executives — a technology they get as they replace core gear with IPv6-enabled products. Already, major vendors, such as Cisco and Juniper Networks, are prepping and releasing IPv6-ready switches and routers, while Microsoft promises IPv6 support in its newest operating system. But management, applications, middleware and security infrastructure required for most production networks are still missing, reports the IPv6 Forum.

Still, IPv6 advocates won't be derailed from their "deploy IPv6 now" mantra. IPv6 is critical to reaching an advanced IP paradise because of the billions of devices that will be deployed, they say. "The real issue is how many things can you put on the 'Net and distinctly address. Scaling puts a great challenge on the address space," says Vint Cerf, senior vice president of technology strategy at MCI. "Rather than waiting and having a crisis, let's move to IPv6 now." ■

Moonv6 progress report

Service providers have gone beyond the basics of seeing if IPv6 works in the lab to seeing if it works in their networks, says Ben Schultz, managing engineer at the University of New Hampshire Interoperability Lab, which administers the Moonv6 test bed. He charts the IPv6 test bed's progress:

Fall 2003
- Host-to-router interoperability.
- Simple applications (Ping, FTP) testing.
- Basic router interoperability.
- Basic transition mechanism testing.

Spring 2004
- Detailed testing of IPv6 routing protocols.
- QoS demo.
- Basic IPv6 firewall testing.
- Point-to-Point Protocol over Ethernet demo.
- Basic multicast routing testing.

Fall 2004
- Basic testing of DHCP and DNS.
- More advanced IPv6 firewall testing.
- Access policy testing.
- Basic transition mechanism testing.

Spring 2005
- Application demo for streaming unicast and multicast media.
- DNS and DHCP testing and functionality demo.



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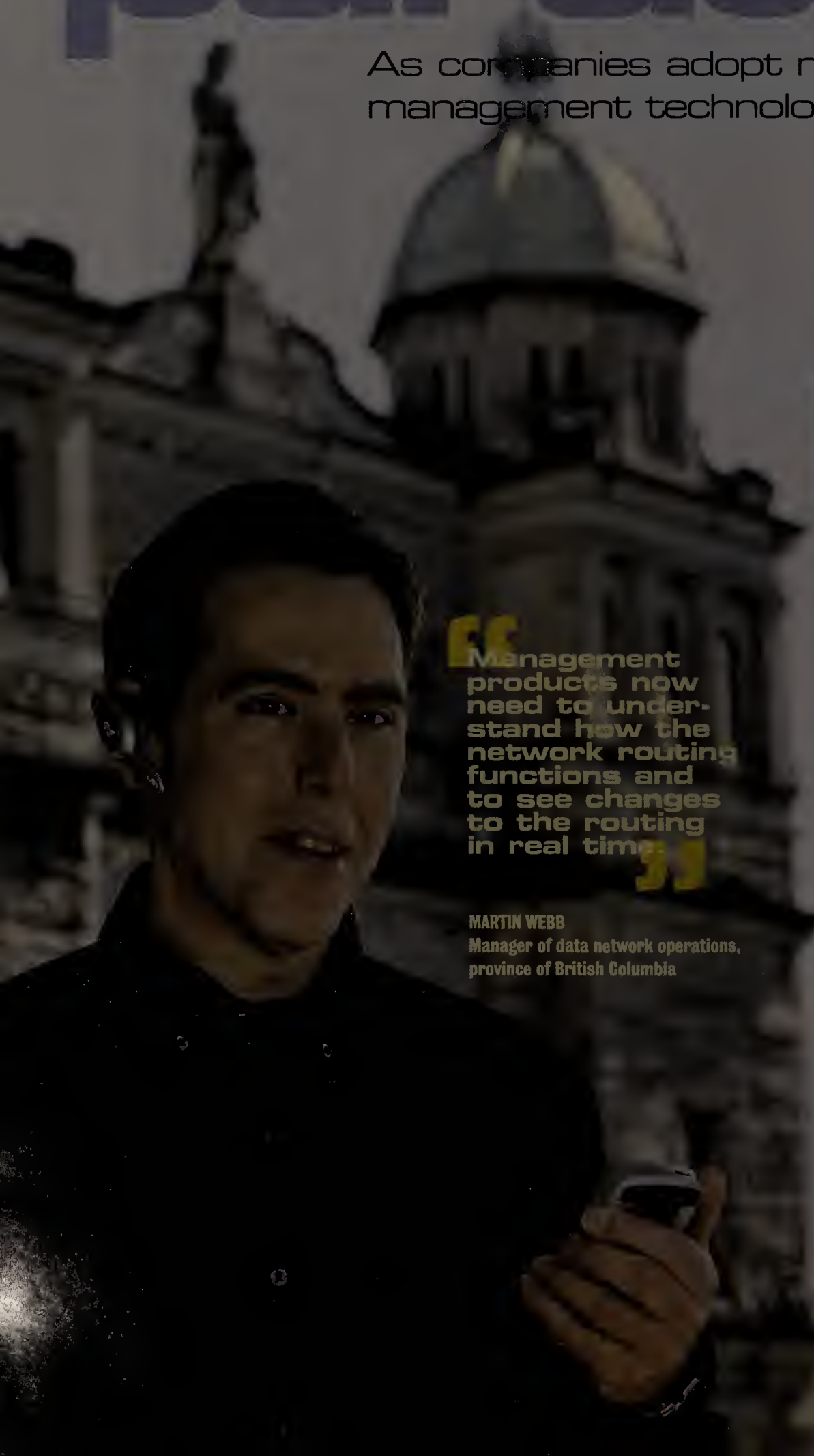
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Trouble in paradise?

As companies adopt more IP-based applications, management technologies must get smarter.

SPOTLIGHT ON ADVANCED IP



BY DENISE DUBIE

For Martin Webb, upgrading the network to support new IP-based applications and then adequately managing them can be like taking one step forward and two steps back. As technologies such as VoIP emerge to advance his network, the tools to manage them are falling behind, says Webb, who is manager of data network operations for the province of British Columbia, in Victoria.

"Network management technologies are fairly well positioned to tell you if the device is available, and report on traffic in and out, utilization and errors," Webb says. "The problem is, they only give you visibility into how you believe your traffic is flowing. Management products now need to understand how the network routing functions and to see changes to the routing in real time."

The traditional model of centralized server software depending on distributed agents and intermittent SNMP polling of the network simply can't keep up with the rate of real-time change that today's applications sustain. Never-mind looking ahead to a time when data, voice and video applications will share on-demand bandwidth and computing resources. Then Web services-based service-oriented architectures (SOA) will enable applications to dis-associate from the hardware, requiring management from within the application. And the management of today really will lose its bearings.

"The mainframe-oriented and agent-based technologies are going to evolve in the next five to 10 years to support real-time requirements, and that's going to call for a lot of integration and standards support among vendors," says Stephen Elliot, a senior analyst with IDC. "Even now, large vendors are looking to improve their management capabilities through standards and more management knowledge of various IT domains, such as applications, storage, servers and networks."

As management vendors change their perspectives, corporate IT executives need to shift their view of the advanced IP infrastructure from one of network availability to a more dynamic picture of application performance on — and user experience with — the network. In British Columbia, as Webb rolls out VoIP to some 450 sites, he finds himself talking with developers to better understand how applications need to traverse his network. Since implementing a partially meshed network, it's anyone's guess which way application traffic will choose to travel, Webb says.

See Manage, page S12

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Manage

continued from page S10

"We can look at bandwidth consumption and see no errors, trying to understand why the user experience is becoming a problem," he explains. "We're realizing more and more there are traffic flow issues, but with centralized monitoring tools, it gets very difficult to bring all the pieces together."

Management heavyweights, such as BMC Software, Computer Associates, HP and IBM, are tweaking their products to better share data among them, as well as adding ease-of-install and use features to management suites that once required considerable upfront work to get results. The vendors also are partnering with start-ups, such as Collation, nLayers and Relicore, to build and update application topologies and collect configuration data across network devices, and application and server software. As a result, IT should be able to visualize how applications use network resources and get an accurate picture of application performance and IT service delivery.

Yet few management software makers have put a stake in the ground when it comes to IP-based applications such as voice and video. NetIQ and Micromuse offer VoIP management products, and CA is expected to put its Concord acquisition to use in the realm of VoIP management, but the leading vendors mostly have only pieces of the larger product set needed.

"IT managers are looking to equipment manufacturers to get a handle on voice and video performance. The network and systems management folks are still polling, and that is not real-time," says George Hamilton, a senior analyst at The Yankee Group. "For voice and video, there are more transient performance issues and you need something that can capture that information for troubleshooting and diagnostics."

Bringing on additional IP traffic is stretching the limits of LAN/WAN and QoS tools at White Electronic Designs, says James Kritcher, vice president of IT at the provider of integrated silicon and packaging services. The Phoenix company, which already uses IP for security cameras, iSCSI storage and Polycom videoconferencing, is testing VoIP.

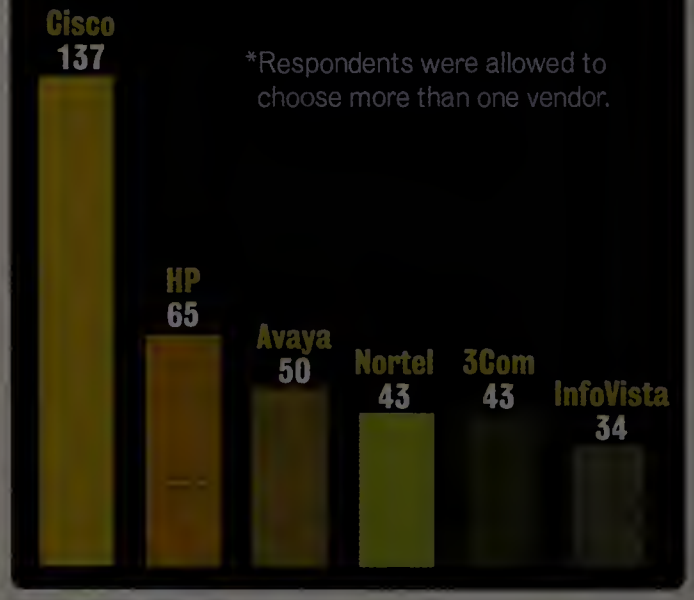
"In our VoIP pilot, we are finding it can be a challenge to maintain the quality and consistency of voice communications in a dynamic network environment," Kritcher says. "Apps that had run just fine previously begin to choke when voice traffic is introduced."

That's why Chris Holbert, when he was IT director at medical device manufacturer North American Scientific in Chatsworth, Calif., kept voice and video traffic separate from the data application on the company's MPLS network. (Holbert has changed jobs since press time.) "The applications were segmented on the network mainly because of the inability to manage quality of service, reliability and security," he explains. "To manage the IP net of the future, tools have to operate at Layer 7 across the stovepipes where the true application intelligence is."

The premise of routing application traffic based on content, prioritized by IT managers' pre-defined rules, isn't a new one for the WAN. But now Layer 4-7 products, sometimes called application front-end processors, are reaching into the data center. These appliances combine application and network point solutions, while providing functions such as server load balancing, SSL acceleration, compression and traffic shaping. Other appliances look at WAN performance by evaluating performance characteristics from within the LAN. Cisco, for example, might find its way into the data center with its recently announced Application Oriented Networks (AON) strategy for optimizing Cisco networks to run Web services. The AON line includes modules that offload some XML-based message processing — once done in middleware server software — onto Cisco Catalyst 6500 switches and integrated services routers in branch offices. The AON line also will include software for managing the flow of XML traffic.

Managing IP telephony

Despite software vendors' best efforts, enterprise IT execs prefer the gear guys when it comes to VoIP management tools, according to a Yankee Group survey of more than 250 companies using VoIP. Most respondents said they use a combination of tools, with a majority reporting Cisco tools among them.



"The equipment guys like Cisco put intelligence into their gear and say that's the way to manage the future nets, while [software vendors such as] Microsoft and IBM say the network is a dumb routing platform that needs to support intelligent applications," Yankee's Hamilton says.

The Web services challenge

HP in June announced its OpenView SOA Manager software, intended to help developers build management into their applications and to allow network operations staff to better track application performance across the SOA. BEA Systems, CA and IBM reportedly also have SOA management tool plans, which may cause problems for niche vendors such as Actional, Amberpoint and SOA Software.

While network latency, packet loss and jitter cause performance problems with voice and video applications, Web services propose a different set of challenges for IT staff familiar with monitoring the performance of applications connected to specific servers. "SOA and Web services require active management and an intermediary within the systems," says Ron Schmelzer, a senior analyst at ZapThink. "Passive management will send a task to a human; active management will do something about it if something goes wrong along the service chain."

Managing SOA requires a shift from managing IT components to managing the processes associated with an application, which can include some 70 to 80 pieces, says a senior vice president of architecture who wished to remain anonymous. "The point of SOA is to re-use business services, which means the applications have to be more transparent and work together more easily," says the IT executive, who works at a financial services firm. "For SOA, you need an umbrella layer that can see all the traffic that is being managed by multiple vendors and be able to point to the problem causing the service to fail across the processes."

To get an idea of management on applications not attached to any specific server, vendors need to embed the management intelligence into the application. And developers need to build applications with management in mind, taking into account how to configure the application to run in specific environments. The change will take time and will require that vendors adopt standards.

"For a while, you'll see a hybrid of agent and agent-less technologies, as vendors work to integrate their own management capabilities across domains. Such standards as Web-based Enterprise Management and XML will help bring about easier integration for Web services management across various products," IDC's Elliot says.

Despite advances in various forms of application management — data, IP and Web services — most IT managers believe they still will need to use multiple tools to manage their advanced IP networks. Integration will be the focus going forward. One would hope the vendors could facilitate the move toward a fluid management system, made up of several tools tackling various technologies. But for now, network managers will rely on their own innovations to achieve the ideal "single pane of glass" to monitor application performance on converged networks.

"We just integrated our management tools to feed data into one console so we can stop depending on five or six consoles and get an idea of performance from one place," says Kim Jahnz, lead WAN data network engineer at Aurora Health Care in Milwaukee. Jahnz uses management software from Aprisma and Concord, as well as tools from Intellitactics and Attention Software. Strong technology partnerships among software and equipment vendors will help better manage a converged network, Jahnz says.

"It's easier if I do the integration work and prevent our staff from having to train on multiple systems, but it would be nice if software vendors could agree on a standard, like [has happened on the hardware side with] Cisco," she says.

Jim Mileski, systems administrator for Financial Partners in Agawam, Mass., agrees. "In IP networks, everything is getting larger and more complex. ... Now you need tools that are smart enough to tell you what's there, how it's configured and which one event is the one causing the problems." ■

Business intelligence gets the back burner

While management vendors struggle to pull together pieces of technology to manage IP application performance, the idea of incorporating business intelligence into the mix gets pushed further into the future. Read more on www.nww.com, **DocFinder: 8526.**



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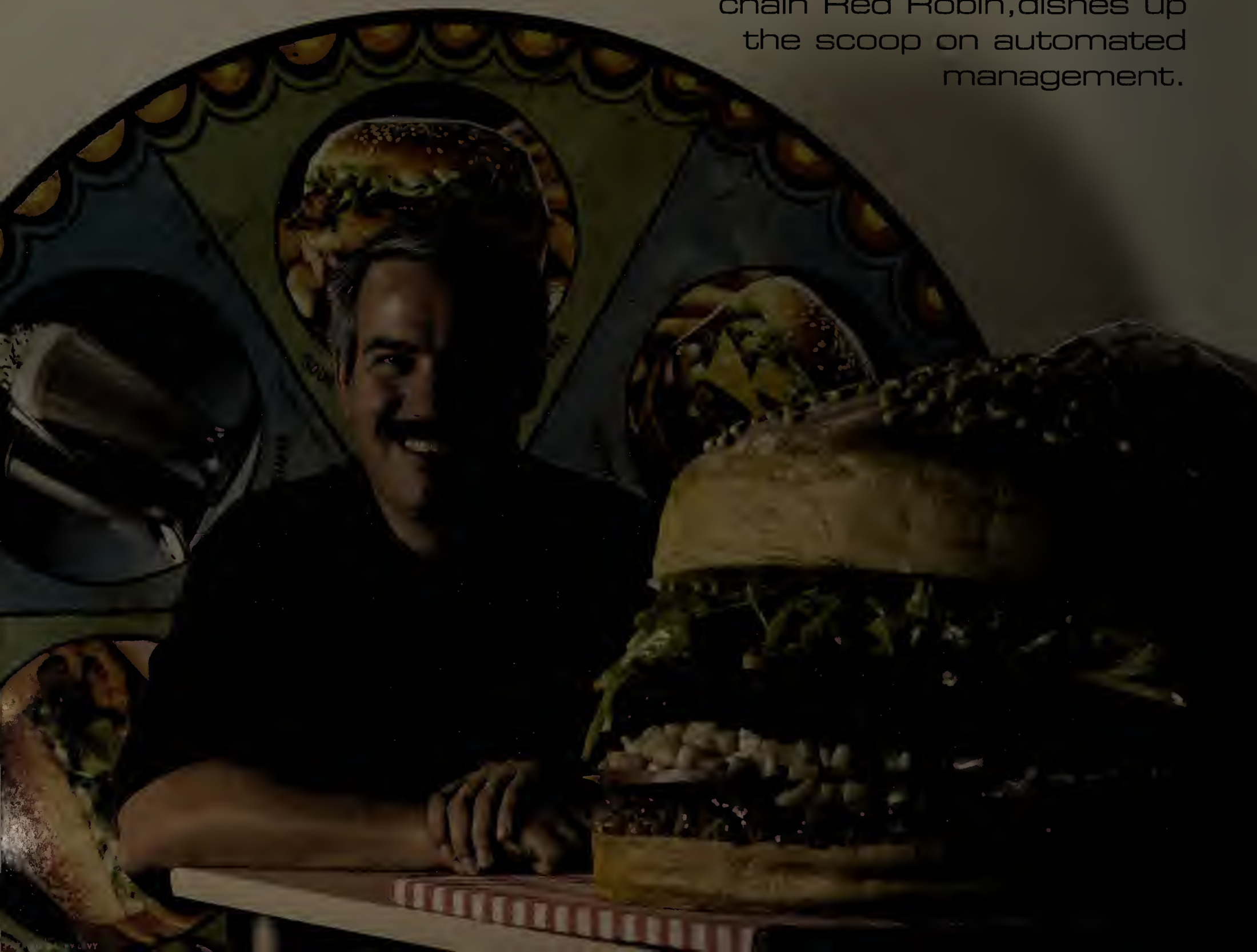
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INSIDE THE NDC

Hungry for automation

Bill Randall, director of MIS infrastructure at restaurant chain Red Robin, dishes up the scoop on automated management.



Restaurateur Red Robin is devouring new data center technology. Use of automated management, for example, has led to impressive performance and financial gains, such as a reduction of network downtime by 50% and a resulting $130,000 saved in 2004. Now the staff has discovered that security information management (SIM) can greatly cool the sting of Sarbanes-Oxley audits. Bill Randall, director of MIS infrastructure at the Denver company, shares his insights on the payback of proactive management, the realities of using today's automation tools and more in an interview with Signature Series Executive Editor Julie Bort.

Red Robin's new data center, built two years ago, hosts 42 Windows 2003 Dell servers, on a Gigabit Ethernet backbone, and runs Exchange 2003. A Cognos business intelligence tool lets employees mine a 450G-byte Microsoft SQL 2000 data warehouse that hosts about 4.5 million sales records.

Red Robin has been hopping with cool, new technology since building your new data center. How are you managing it all?

We started out with NetIQ AppManager Suite two years ago just to help us keep a grip on everything. We have over 40 servers sitting on a rack, and I don't want to pay an engineer for logging in and checking on them everyday. My engineers are paid to think and work on projects. So it made sense to have AppManager monitor our systems and check that the processors, temperature, memory and so on look fine. If it sees that, hey, memory utilization has been over 50% now for over eight hours, it notifies us so we can take the appropriate action.

Are you using advanced automation — where processes a human used to do by hand are now done automatically?

There are things that we let NetIQ do. For instance, if utilization gets to a certain point on our NAS box and stays there, we know that it just needs a restart. Somehow memory utilization creeps up on Windows boxes until you reboot. So it monitors for that and reboots the box at an off-hour and sends us a notification.

I don't know that we're ready to turn the keys entirely over to any automation program. Remember that Matthew Broderick movie — "WarGames" — where the computer was ready to declare World War III? I don't think that would happen in our network, but we're still careful. Automation technology lacks is the ability to test before it acts. We need to find out what the impact is going to be. If you change the way SNMP is done, for example, it may affect the backup server and several other environments. We look at automation from a standpoint of wanting [the monitoring system] to collect information, make recommendations, and let us use our human and engineering perspectives to determine whether that recommendation actually applies. Once we've tested it and know the right course to take, we can script and automate.

You attribute a 50% reduction in downtime, which saved some $130,000 last year, to automation. Can you give me an example?

We looked at what our downtime was a year prior vs. a year after implementing AppManager. Outages that happen with a network infrastructure are often due to silly things — no one notices the print server is turned on until it finally runs out of disk space and print services go down because it crashes the operating system. Then you've got to rebuild it from the [backup] image. We now take a proactive approach and we've alleviated most types of errors like memory or disk space [problems] that give you page fault errors. With a proactive approach, we'll replace that memory right away, before it can corrupt the application.

A few months ago you rolled out SIM. Why?

We expanded our relationship with NetIQ and deployed Security Manager in March — it was compliance-related. Sarbanes-Oxley is a big challenge for everybody. When auditors come in for SOX, there are many things they don't necessarily have an understanding of from an IT perspective. Logins, expiration dates and logs are what auditors can really wrap their arms around. To meet the requirements of what our auditors wanted us to do with our logs, we were going to have to spend the equivalent of one person's time for a full two days a week just reviewing logs. Security Manager collects all that information for us.

Now we're taking Security Manager to the next step and creating correlation rules. One warning popping up on a log doesn't always have much meaning. If you start seeing that warning tied to other events that are happening in different parts of the network, then you need to respond to it. If we see something on our TippingPoint IPS [intrusion-prevention system], at the firewall and at the network, then we know we need to respond.

Does your SIM monitor every device that produces a log?

Yes — routers, firewalls, IPS. Then it spits out only the things that are relevant to us.

For the Cisco pieces, it has built-in agents for fine-tuning the monitoring. From TippingPoint, we get the raw log, and there's a ton of stuff there, since it's at the edge. [With the help of systems integrator Performance Enhancements Inc. (PEI) of Boulder, Colo.,] we tuned Security Manager to get us some real value. For example, NetIQ has dozens of scripts for Dell. You can certainly deploy all those and have tons of alerts. Does that necessarily have any value? Probably not. PEI showed us which ones to use for Dell, for Exchange, to get the key information and then as we want to drill down, we know other scripts exist to dig deeper.

What kinds of tasks does your SIM do for you that you couldn't do before?

Security Manager tests for best practices related to [system configurations]. It digs into how SNMP is configured on every machine. We'd like to think that we caught everywhere there could possibly be an anonymous login allowed, but this product is out there and it's not ignoring anything.

What's up next for your new data center?

We're putting some infrastructure in place right now to support hierarchical storage management — first for our Exchange environment and eventually our whole network environment. So we just brought on a new NetApp filer for our mid-tier storage. We currently run on an EMC SAN, and we have an Aberdeen AberNAS box just for raw storage — it's cheap, effective and reliable.

Next year, we'll be looking at server virtualization [for our production environment]. We've used VMWare for sometime, for our test/dev environment. We've been really happy with it for that, but it seems to me you can also use it to create [an architecture] where redundancy doesn't become a big a hardware burden. We've been in a new building for over a year and half, and we're already running tight on space — we don't have two empty racks anymore. When you talk about that automation piece, virtualization starts becoming very practical. You can literally have two of everything, where one of them can sit unused until it needs to be accessed for maintenance. ■

Feasting on VoIP

IT serves up a healthy business plan for Red Robin by running VoIP.

carry traffic among its restaurants and offices, the Denver-based Red Robin hamburger chain relies on a frame relay network. Data and VoIP traffic split the 128K-bit/sec frame relay connections 50-50.

"The upside is that frame is extremely reliable. The downside is that we pay a bit for that reliability," says Bill Randall, director of MIS infrastructure at Red Robin.

Still, the ROI is impressive. For instance, credit-card transactions are controlled by the point-of-sale system and run through the network to the Internet for authorization. This saves two or three seconds per transaction, Randall says. "80% of our transactions are credit cards. If you take that two to three seconds times 300 to 400 transactions per restaurant per day, [the time saved] gets pretty significant," he says.

A Cisco shop, Red Robin IT chose Cisco Call Manager, Cisco Unity and Cisco 2811 routers for the VoIP platform. These routers support Layer 2 switched traffic and old-fashioned Layer 1 connections — needed for the mission-critical point-of-sale system, which hangs in its own subnet, Randall says.

VoIP is run primarily on the WAN, among headquarters, regional offices and the restaurants. However, in June, the IT staff completed its first implementation of a restaurant that runs entirely on VoIP. That Parker, Colo., restaurant uses VoIP over its LAN, too.

VoIP eased call handling and system management. Previously, all phone system changes had to be done on location at each restaurant's PBX. Today, they are done at the central office. "If a restaurant wants directions in a multilingual format, we can easily support that. We can change recorded hours on the fly. We're able to give them directories to other restaurants and to regional offices. It's all the features of a cell phone sitting on your office phone."

— *Julie Bort*

Thinking through virtualization

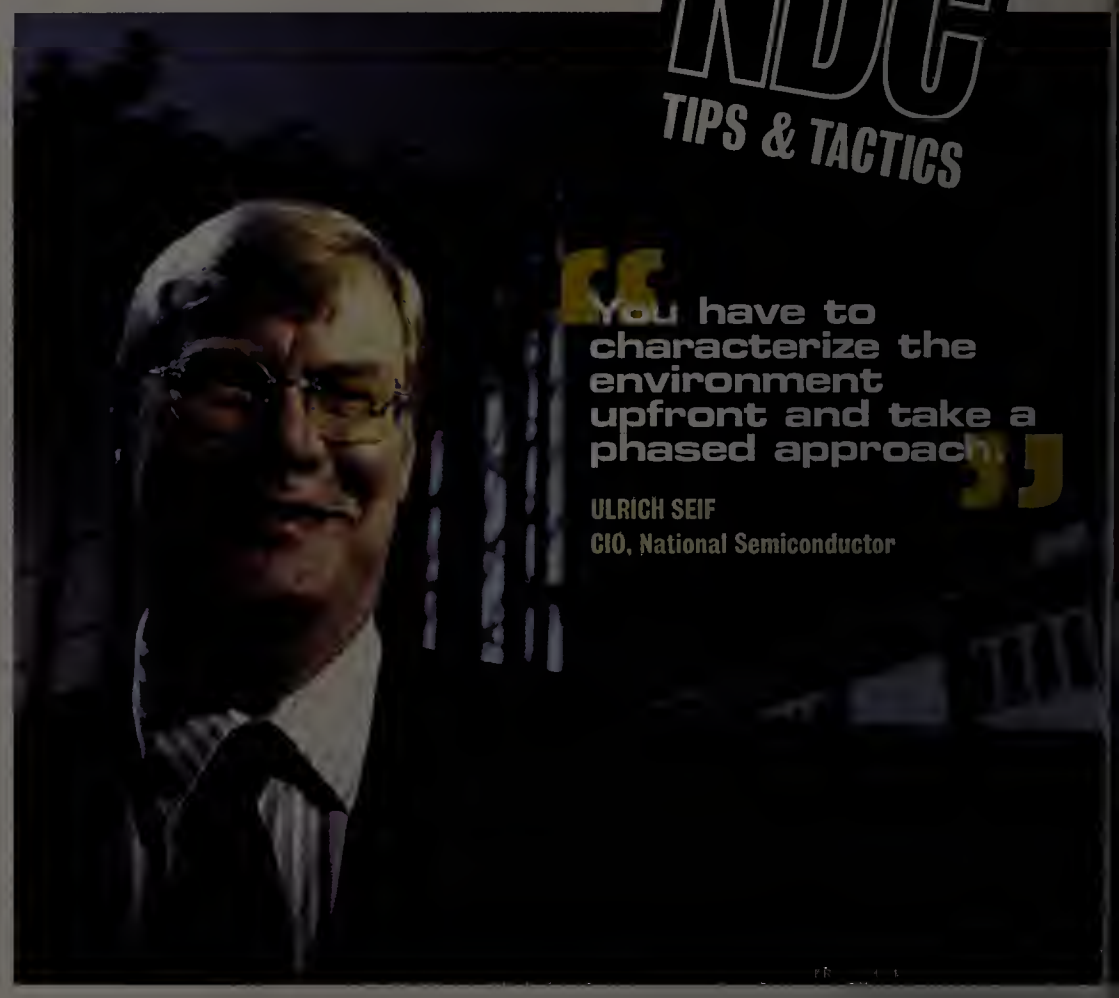
IT execs and industry experts share advice on how best to approach server virtualization.

NDC TIPS & TACTICS

BY JENNIFER MEARS

Over the past year, server virtualization has become a new data center technology du jour. Microsoft, competing head-on with VMware, has its Virtual Server 2005 (which will soon even support Linux). Meanwhile a host of start-ups are putting novel spins on the technology. For example, SWsoft offers a tool that creates multiple instances of an operating system from one installed operating system; Meiosys and Trigence virtualize applications; and Virtual Iron Software performs virtual symmetric multiprocessing.

Network executives can stay savvy by following these four suggestions:



1. Keep your eye on the prize. As with any IT project, the best way to begin with server virtualization is to have a clear idea of the goal.

"The key is to think about what benefit it provides or what the company is trying to achieve," says Scott Donahue, an analyst at Tier1 Research.

Be specific. Lofty results such as saving money or easing management headaches won't help you choose the proliferating server virtualization option that is right for you.

"When you understand what you're trying to do and what your deployment scenario looks like, then it's easier to start differentiating between VMware and SWsoft or Microsoft, or between Meiosys and Trigence," Donahue says. "But if you're just thinking, 'Well, I need to virtualize my environment, and I really like the idea of consolidation and cost savings,' it's going to be difficult. The different kinds of virtualization solutions are going to give you those high-level benefits. They're all designed to do that."

The trouble with being unclear about your ultimate goal is that you won't get fine-tuned benefits, Donahue says. "You'll get 40%, but you might not get that other 60%," he says.

"Do your due diligence," says Barry Lalone, server platform architect at Jack Henry & Associates, a technology provider for the financial industry.

Lalone reviewed a number of virtualization technologies, including VMware, Microsoft Virtual Server and User Mode Linux, before deciding SWsoft's Virtuozzo was the best fit for the Lenexa, Kan., service provider's Windows environment.

2. Start small. Once you've got a good grasp on your endgame, bring in the technology bit by bit.

When National Semiconductor decided to adopt VMware last year to boost abysmal utilization rates on its Windows servers, the IT staff took things slowly — despite being no stranger to virtualization. The company for years has carved up partitions on the mainframe. "We really saw this as a disruptive technology. ... We learned that you have to characterize the environment upfront and take a phased approach," says Ulrich Seif, CIO of the Santa Clara company. "So look initially at the low-hanging fruit and take those applications that are occasionally used and roll them in first."

Application servers with a small user base or scheduled, predictable demand are good candidates, says Paul Mackey, National's Windows server architect. "Then work up the chain to more critical applications," Seif adds.

Harry Williams, director of technology and systems at Marist College in Poughkeepsie, N.Y., agrees users should start small — literally. "Start with smaller servers," says Williams, who's running a handful of virtualization technologies, including mainframe virtual machines, VMware, open source Xen virtual machine monitor and User Mode Linux. "Don't pick four servers that run 100% CPU bound, each using 4G bytes of memory, and expect that you'll be able to put them all on one single server of a similar size," Williams says. "Pick servers that have peaks and valleys of usage. You might have to get a slightly larger machine than you would normally deploy, but a single machine is still easier and cheaper to run than four slightly smaller machines. Expect that you will have to adjust settings as you proceed. It will not be perfect the first time."

3. Be mindful about management. You must be able to tinker with how virtualized systems are managed. Server consolidation and cost savings have driven the use of server virtualization, but with the technology becoming an important part of a dynamic data center, the ability to provision and allocate the servers becomes crucial.

Electronic Data Systems (EDS), in Plano, Texas, uses VMware and Microsoft Virtual Server technology for virtualizing servers that support Web hosting and other applications. It tops that off with management tools from VMware and InfiniBand switch vendor Topspin Communications, a 2003 *Network World* start-up to watch whose acquisition by Cisco is pending.

EDS uses Topspin's VFrame management software to enable the InfiniBand switches to provision servers, storage and networks according to policies and rules, and VMware's VMotion technology to direct how virtualized resources are provisioned and used.

"You need good tools to manage a virtualized environment," says Robert Keahey, director of IT outsourcing architecture at EDS. Without such tools, you could easily find that you have implemented too much virtualization, he says.

"If you don't have the management capability in place to control the environment,then you could run into a situation where you might start thrashing your servers around by moving workloads when you don't need to," Keahey says.

4. Know when to say "when." That leads to a final point: Know when server virtualization will save money and boost efficiencies and when it doesn't make sense.

As IT managers become more comfortable with server virtualization technologies, they might rush to virtualize everything. But users say virtualization isn't always the best approach.

"If you have an application/server combination that's well tuned, it makes no sense to put another layer of abstraction into that environment," Keahey says.

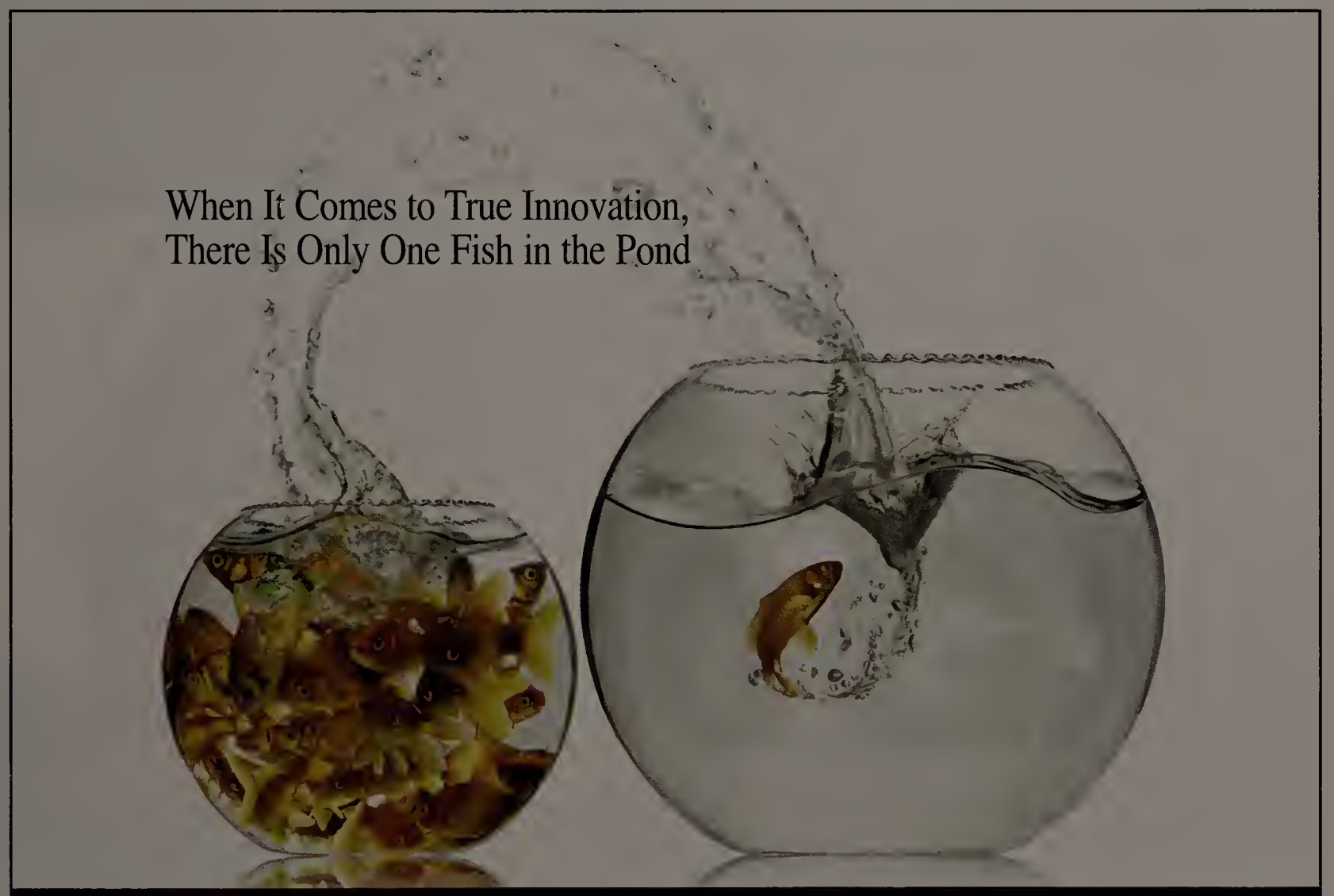
Performance drags, and costs become issues, because virtualization tools can hit servers with both.

"On a case-by-case basis, you have to decide if upfront costs are going to be worth the savings in time and maintenance later," says Justin Schumacher, software and systems design engineer for Adaptive Instruments, an industrial sensor product company in Hudson, Mass.

The bottom line for server virtualization: Understand what you're trying to achieve.

"Almost forget about the term 'virtualization,'" says Gordon Haff, an analyst with Illuminata.

"Just think about what you are trying to do and look for the tools that will help you get where you want to go," he adds." ■



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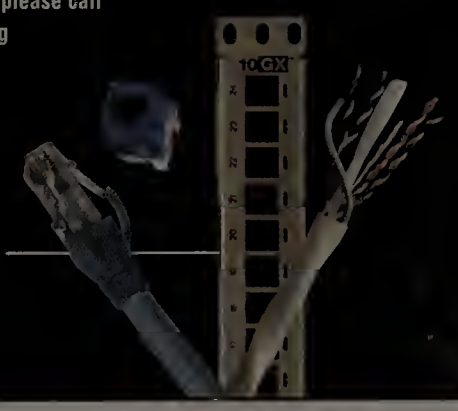
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BY JENNIFER MEARS

Simulation software firm Exa has a customer list that reads like a who's who of the automotive industry: Audi, BMW, DaimlerChrysler and Ford, to name a few. The automakers rely on Exa for computer-aided design software that enables them to build the most aerodynamic vehicles possible.

[illegible] relies on IBM to provide the [illegible] computing power that the [illegible]



> "Certainly, there is no way that QuantumBio, and indeed most of our customers, would like to put down that kind of cash . . . when the CPU time can be bought on an as-needed basis at a much lower overall cost."
>
> **LANCE WESTERHOFF, chief software engineer, QuantumBio, speaking of the $2 million price tag of a commercial version of IBM's Blue Gene supercomputer**



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Rent

continued from page S18

sume computing cycles on a grid or mainframe for specific, computationally intensive workloads is bringing more companies back around to the idea of renting instead of buying CPUs.

"What makes this interesting now is that businesses have a business reason to acquire resources in this manner," says Mike Kahn, managing director at The Clipper Group.

As an example, he cites pharmaceutical companies, which have huge surges in computing requirements at certain stages in their drug testing. These companies would likely find it makes better business sense to tap into the resources they need for peak demands, rather than spend the money to buy hardware that would sit idle much of the time, Kahn says.

> **"[Before Deep Computing on Demand,] some [computations] just were not done. . . . Now there are whole classes of vehicle programs that we are supporting . . . that we would not have been able to do any other way."**
>
> **STEVE REMONDI, CEO, Exa, an auto simulation software company**

Clout for the little guy

At the same time, the ability to pay only for what you need and avoid upfront capital expenditures opens the door for smaller companies, such as Exa, to have computing power that makes them competitive with larger firms.

"What's cool about what IBM and Sun are doing is they're opening up technology that really was only available to a narrow subset of users," says Charles King, principal analyst at Pund-IT research.

Exa, which is one of the first customers to tap into IBM's Deep Computing on Demand center in Poughkeepsie, N.Y., certainly has seen a shift in its capabilities. Before Deep Computing on Demand, "some [computations] just were not done," Remondi says. "People said, 'Well, we have fixed-capacity machines. I can't get all these computational simulations done.' So they would just go without the information," he explains. "Now there are whole classes of vehicle programs that we are supporting with this center that we would not have been able to do any other way."

As many as 40% of Exa's 100 customers tap into the IBM Deep Computing on Demand center for hosted access to Exa's software, Remondi estimates. The rest run the software in-house. Capacity demands range from 1,000 to 5,000 CPU hours.

Having a name like IBM behind Exa's service gives the small company the clout it needs when assuaging big customer concerns, such as security, Remondi adds.

Proof-of-concept modeling

Security is the biggest hurdle for QuantumBio, a drug discovery software company, says Lance Westerhoff, chief software engineer at the State College, Pa., firm. QuantumBio has been tapping into IBM's Blue Gene on Demand service in Rochester, Minn., for a validation study aimed at showing proof of concept to its customers, he says.

"We'll use about 1,000 processors for two weeks," says Westerhoff, who is a principal investigator for a Department of Defense contract to use modeling for determining countermeasures for bioterrorism. Once customers see the real-world results of being able to tap into such powerful computing muscle, they'll see the benefits outweigh the risks, he adds.

IBM designed Blue Gene, which is made up of specially designed Power-based nodes, to provide extremely dense processing power. (A Blue Gene system at Lawrence Livermore National Laboratory has earned distinction for two years running as the fastest computer in the world on the Top500 supercomputer list.)

The cost to bring a commercial version of Blue Gene in-house starts at around $2 million, Westerhoff notes. "Certainly, there is no way that QuantumBio, and indeed most of our customers, would like to put down that kind of cash, plus the costs of administration to run these jobs, when the CPU time can be bought on an as-needed basis at a much lower overall cost," he says. "They might do that in the future, but everybody right now is still at a point of trying different technologies."

New business opportunities

For PGA Tour, the ability to tap into an IBM mainframe, rather than buy one and house it onsite, enabled the golf Web site to launch an interactive application through which users follow their favorite golfers in real-time. PGA Tour unveiled its TourCast offering in 2003 after working with IBM to have the application hosted on Linux partitions on a mainframe.

"The business-model component was the biggest challenge. This was our first subscription-based application so we didn't really have a great set of numbers we could count on to figure out how many people would subscribe," says Steve Evans, vice president of IS for PGA Tour, in Ponte Vedra Beach, Fla. "The other option would have been to basically guess at how much server capacity we really needed."

By sharing the mainframe with other users and paying only for what it uses, PGA Tour expects to cut costs by 35% over three years compared with what it would have spent had it brought in Intel servers to stand by in case of spikes in demand, Evans says. At its peak, Evans guesses that PGA Tour would have needed about 100 Intel servers to handle the TourCast demand.

Regardless of whether the computing power comes from a mainframe or a grid or cluster of smaller systems, being able to tap into CPUs as needed stands to change the way companies think about their computing infrastructure. "You're no longer limited by capacity or cost," says Exa's Remondi. "You can just pay for a single job, and you don't have shelfware and hardware lying around and excess capacity. You eliminate the need for big capital-equipment purchase decisions. If a job is valuable you do it; if it's not, you don't." ■

CPUs for hire

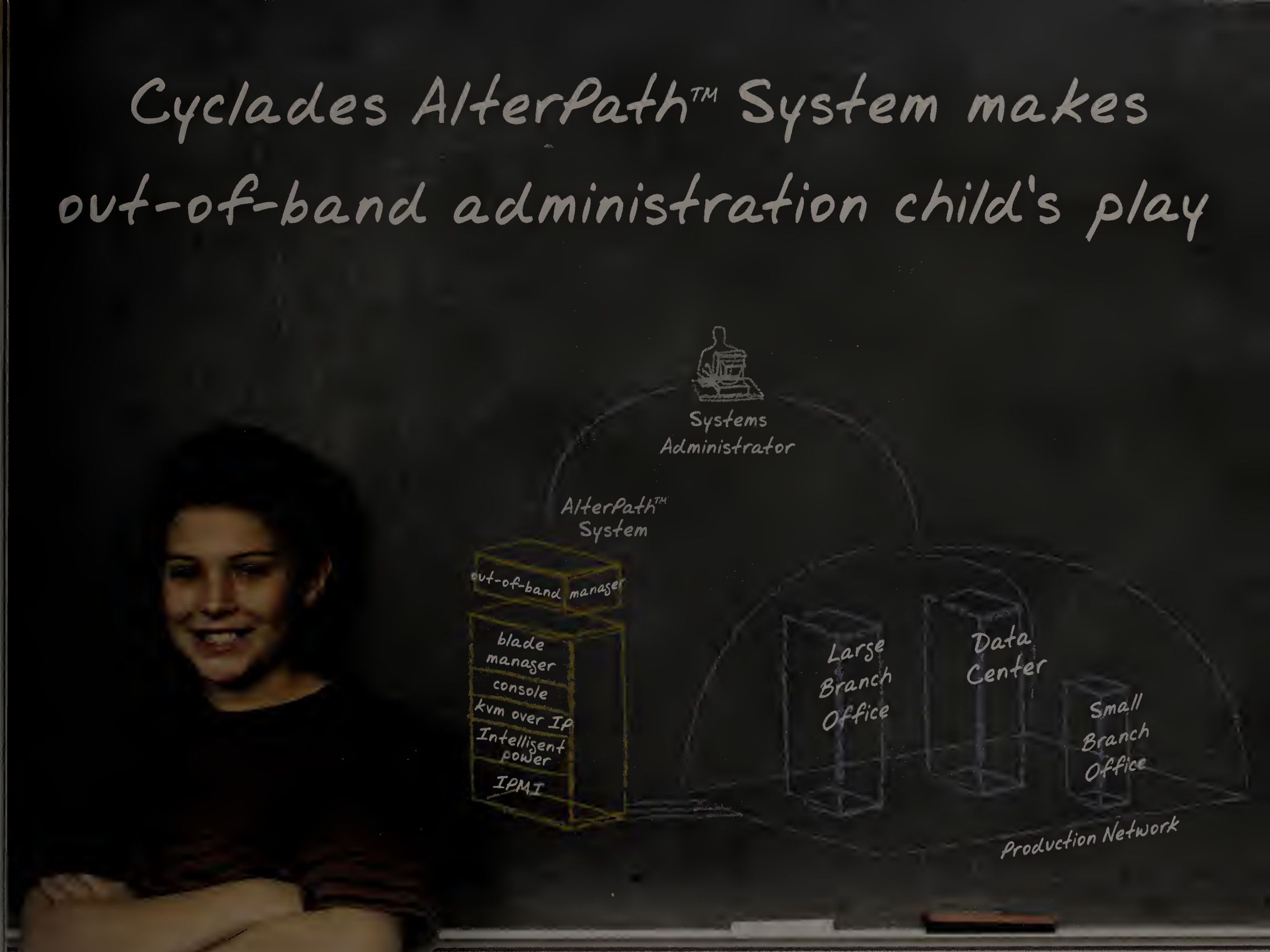
A look at what systems vendors offer to users who want to plug in and get computing power for specific high-demand jobs:

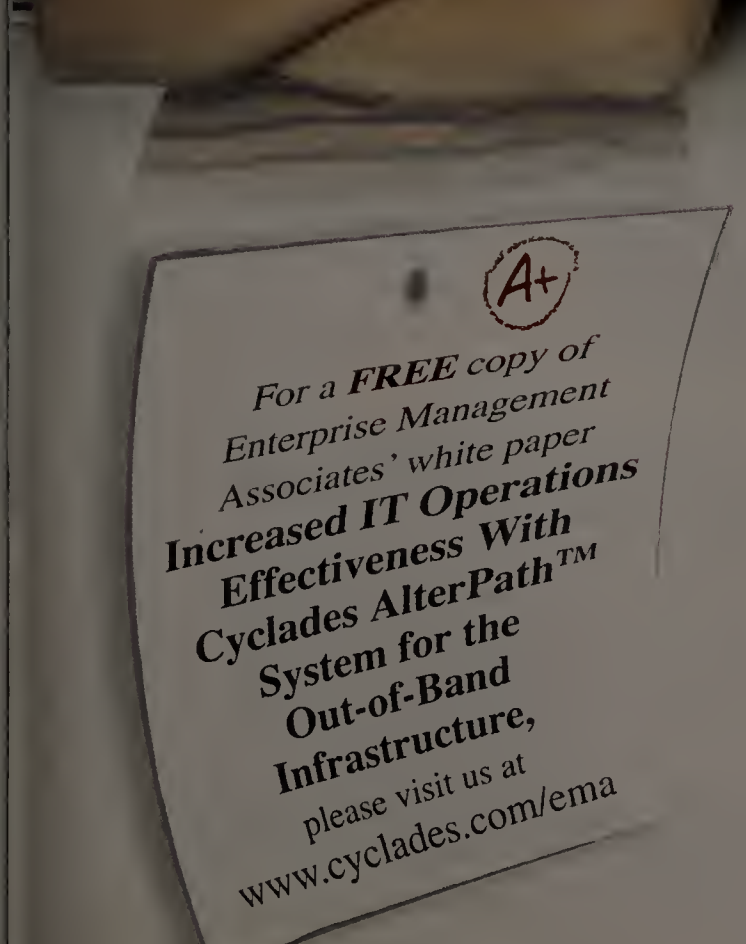
Sun: Sun Grid, unveiled in February, $1 per CPU per hour, to be generally available through a retail portal this summer. Today, used by a few large banks doing simulations for investment strategies. Opteron-based systems running Solaris in centers in London, New Jersey, Scotland and Virginia.

IBM: Deep Computing on Demand, launched in 2003, $5,000 membership fee then about 50 cents per CPU per hour, with plans to make cycles available via a portal in second half of the year. Today, mostly used by companies in life sciences, oil and gas, and entertainment industries. Intel-, Advanced Micro Devices- and Power-based clusters running Linux, Windows and AIX in centers in Poughkeepsie, N.Y.; Houston; and Montpellier, France.

Blue Gene on Demand, launched in March, pricing similar to Deep Computing on Demand. Consists of specially designed Power-based nodes that include only a processor and a small amount of memory to provide extremely dense processing muscle for Linux workloads. Center in Rochester, Minn.

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THE LAST PIECE



INDUSTRY INSIGHT

How to get IT right

Next-generation IT is all about blending business, process and technology, says BMC strategist Mark Stabler.

Business service management has become a much-talked-about enterprise management scheme. BSM is meant to prove IT's value by linking business and technical information in a logical whole — one of the goals of the new data center. Mark Stabler, vice president of corporate strategy for BMC Software, says that BSM best practices could make the difference in whether a company succeeds or fails with the next generation of IT. Stabler shared his views in this recent interview with Signature Series Editor Beth Schultz.

What makes adoption of IT best practices more of an imperative today than in the past?

The best practices from even 20-plus years ago really haven't changed. What has changed is the complexity of the infrastructure and how you go about managing what needs to be cobbled together to deliver high-level applications.

The vast majority of companies have not kept pace with all the IT assets they have because purchasing has been decentralized. They've maintained asset data in different stores, in different spreadsheets, in SQL servers, in Visio files — they've had it inside of Bob's head. So IT is playing catch-up so it can implement the best practice of maintaining an asset store or a configuration management database — a CMDB. That is going to be difficult for companies to achieve, which is why they have to start thinking about business service management. Best practices are only so good. If you don't have the tools, technologies and the solutions in place, then a best practice is just a piece of paper with a set of recommendations written on it.

How is the BSM approach different from what enterprises are doing now?

What's critical is figuring out how to implement and maintain that one place, where everything is orchestrated from that CMDB. Companies shouldn't have multiple repositories, or 15 databases to maintain. They shouldn't have siloed areas of management — here's my network manager, here's my application manager, here's the person who manages security, storage, databases. This model has to be thrown out and instead management should be looked at from a business perspective — 'If I do not have this application available to the business, or I'm unable to transact X amount of transactions per minute and therefore drive home some margin or revenue, what is the impact on the business?'

I harp on building a CMDB and on asset management because those are core. Industry analysts say that 80% of the problems that happen inside the infrastructure occur because of inadequate or improperly managed change. Somebody changed something without understanding how it was going to impact the business — 'But it was the fifth router I changed. I didn't realize the fifth router would ....' 'Yes, but it's the 14th of the month and quarter to 5 in the afternoon; didn't you realize the impact on the business?'

How does a formal best practices framework, such as the IT Information Library, fit in?

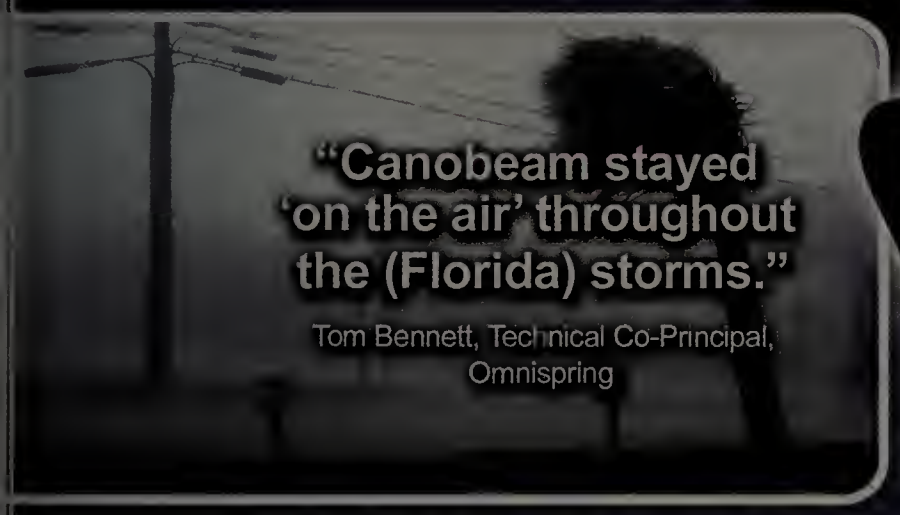
Companies take those best practices, build out the infrastructure around a CMDB and then think about what they have [do a layer of discovery]; how to manage the things they've just discovered [asset management]; how to control changes that may affect these things [change management]; and how to determine, measure and manage the infrastructure components like hubs, switches, speeds. Then they have to determine what the impact is on the business or the business importance or relevance, so that's building out a service model. Now, what are end users expecting? Well, that's service level management surrounding a service desk or help desk initiative. And how well do they perform against that? That's performance management, capacity management. They've got to embark on this journey because IT literally is the business nowadays. IT has to get it right this time.

How long will it take for the typical company to get from where it is today to the best practices and BSM ideal?

Hopefully, in the next three to five years, companies will not be measuring IT based off of response time and availability. They'll be measuring IT off of revenue generated by the company that day. Think of technology at the bottom, the business at top and in the middle, the process. I think the IT shift will be predominately focused on enabling the business at the top and feeding a business score card approach. So the data — feeds, speeds, alarms, alerts ... whatever is going on in IT — will only be important if it's measured out by revenue earned by the company. The question becomes, 'How is IT enabling the business to achieve its maximum goal?' BSM is what will enable that blend of business, process and technology. ■

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APPLICATION SERVICES

Short Takes

■ **Netuitive** last week announced that its **Netuitive SI systems management software** is available to Microsoft Operations Manager customers. MOM is Microsoft's performance monitoring tool. The company says by using Netuitive SI in conjunction with MOM 2005, customers can automate administration, eliminate false alert activity and receive more meaningful and accurate events from the monitoring software. Netuitive SI uses algorithms and mathematical statistics to monitor servers and applications and to forecast when performance will degrade. The software integrates with current monitoring infrastructures, using current agents and consoles. Netuitive starts at $400 per server.

■ **Abexo** last week released **Complete Registry Cleaner 3.0**, a shareware utility for compressing and cleaning up the Windows registry, a local database of configuration settings in the Windows operating system. The company has added a number of new features, including exclusion lists, to protect specific registry keys and programs; error detection tools; and estimates on the before and after size of registries that are compressed. The software's Autopilot feature completes a full registry backup before scanning and repairing the registry.

■ **BluePhoenix Solutions** has unveiled two software programs that can convert mainframe applications based on the widely used Adabas database, and the Natural 4GL development language, into Java applications that work with a conventional relational database, such as Oracle. Adabas, created in 1971, predates the relational database model but is extremely fast in transaction applications, which often are written using the Natural fourth-generation development language. DBMSMigrator for ADABAS/Natural handles such jobs as generating Java code and relational database schemas.

InSite: Lessons from Leading Users

University overhauls student portal

BY PHIL HOCHMUTH

There's plenty of trouble to get into at college, but Northeastern University's CIO has a plan to keep students out of one particularly nasty place.

"Windows DLL hell is what we're trying to avoid," says Bob Weir, the university's CIO, referring to conflicts that can occur with Direct Link Libraries (DLLs) when installing applications on student PCs.

This fall, the university in Boston is adding a new feature to its already-popular student/faculty portal, aimed at easing the installation of software required for classes on personal machines. The application and content management platform will service 25,000 students and staff, offering 1G byte or more of online personal storage. It is also expected to save the school from overspending on application licenses, Weir says.

DLL hell refers to problems that occur when installing new applications on students' machines. Students often resent having applications on their personal PCs corrupted or disturbed.

"We have hundreds of applications to install on [student machines] each semester," Weir says. "We can't do full regression testing on every student's machine for every new application. We want to provide new features and tools, but not destroy an environment installing new software that might break what's already set up on a student's PC or laptop."

Weir's department is trying to phase out distribution of software via CD.

"We're trying to provide students and faculty a way to deliver their applications and make their work available to them anywhere," Weir says. In the past, students were often given CDs with software to install from professors or the IT department. Some departments provided network shares, but available only on the campus LAN.

In evolving from its roots as a day commuter school, the university now has almost three-quarters of its students on campus, which has driven up demands for new applications and network bandwidth.

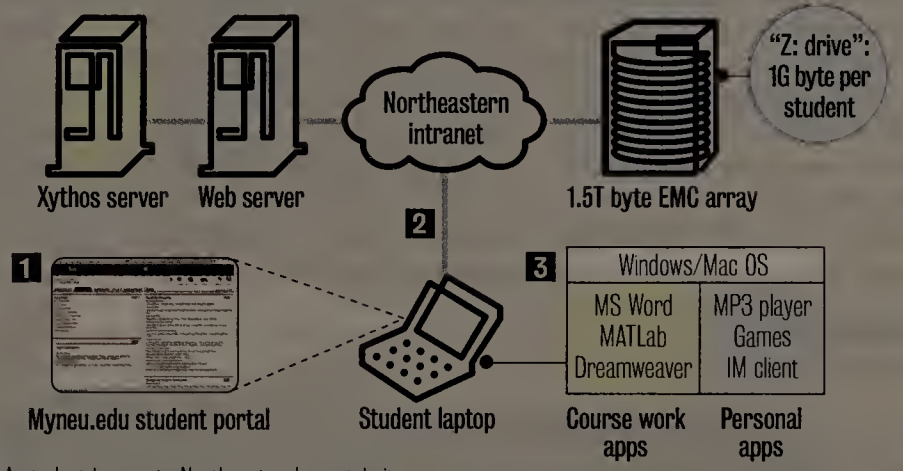
The myneu.edu portal, introduced in 2002, has completed a big chunk of its mission: eliminating what was known as "the NU shuffle" — a constant stream of students walking from the registrar, to the bursar to the financial and other offices on the first days of a semester. Now all registration tasks are Web-enabled and can be done from a computer. The portal makes heavy use of XML-based Web services technology to tie together disparate legacy systems — such as registration system, a COBOL application that's a quarter of a century old — into a single browser-based interface.

On campus, the school has more than

See Northeastern, page 60

Always on campus

Northeastern University is deploying a centralized application distribution server and online storage service for students this fall.



1 A student logs onto Northeastern's portal site.

2 Required applications assigned to the student — through course registration — are streamed to the laptop; up to 1G byte of online storage can be accessed over the Web, via a local folder.

3 Applications are installed and run in a Xythos "container," preventing new software from conflicting or corrupting students' personal applications or settings.

Winternals helps keep servers, desktops fit

BY JOHN FONTANA

While Microsoft works to add more and more fancy features to its operating system, partner Winternals Software is bolstering its centralized management tool designed to keep desktops and servers running at their optimum.

With Version 4.0, Winternals has added a reporting service, support for 64-bit processors and integrated it with Microsoft management software.

"From a system administration perspective, our servers boot faster and shut down faster," says Geoffrey Schwark, systems engineer architect at a service provider in the Southeast. Schwark maintains nearly 2,000 servers and says Winternals is part of his preventative maintenance. His scheduled defrags run weekly. "Anytime you can make a drive more efficient you are going to extend the life of your current solutions and get more juice out of them."

The biggest addition in 4.0 is the reporting features, which let users manage defragmentation of Windows environments. The

See Winternals, page 60



NET INSIDER

Scott Bradner

The fool's gold ring of safety

Almost exactly a year after I wrote about the very strained logic used by two judges of the U.S. Court of Appeals for the First Circuit to remove all wiretapping protection from the Internet, the full court has found some common sense and overruled its brethren. It looks like Bradford Councilman is going to trial, and that is a good thing for you and me.

My earlier column ("Maybe you shouldn't digitize your communications," www.networkworld.com, DocFinder: 8541) reviewed the case, but basically Councilman ran a small e-mail service for book dealers and apparently decided that reading some of his customer's e-mail would give him a business advantage. After being discovered and arrested, his lawyers said that whatever he did was not illegal wiretapping, because the e-mail was not in motion on a wire when it was copied, which his lawyers argued was needed to violate the Federal Wiretap Act. A number of judges, including two of three in a panel from the First Circuit Court of Appeals, agreed, but the U.S. government appealed the last decision to the full court. That court has now ruled (DocFinder: 8542) and, except for the two judges that made the earlier decision and are sticking to their strange guns, unanimously said that there was no way that the minority's assumption of congressional intent could be supported by history. The court sent the case back to district court for trial.

This is an important decision. The earlier one eviscerated wiretap and eavesdropping protection on data networks. Now we are back to the previous state of things. As I wrote last week, that state is a confused one when it comes to the authority of the government to wiretap the Internet. ("Broadband regulation: Why wait for Congress?," DocFinder: 8543) But at least, with this decision, the 'Net is no longer open for everyone to legally wiretap.

Now that this silliness seems to be over, is it possible to bring logic into the wiretapping of the Internet discussion? I'm not sure. As I wrote last week, the FCC has ruled that certain Internet service providers and certain VoIP service providers must be ready to wiretap customers if requested by law enforcement. It's not hard to predict that law enforcement will want the restrictions to "certain" providers removed and they will mutter darkly about national security to try to get that done, nor is it hard to predict that they will succeed. But it's hard to see how easy access to wiretapping would do that much to actually help national security.

Technology that supports direct, encrypted, computer-to-computer communication that looks just like normal "safe" traffic is easy to build. If the real bad guys (national security- or crime-wise) are using the right technology, no ISP or VoIP wiretapping will give law enforcement much real visibility into what they are doing. Easy access to wiretapping would make it easier for the FBI if they fell back to their old, J. Edgar Hoover methods of spying on U.S. citizens who disagreed with something the government was doing and to maybe make it easier to catch dumb, petty criminals but it is no magic bullet to defeat terrorists, drug lords or pedophiles.

The coming national discussion on this will be a hard one because it will be difficult to watch Congress toss out our basic freedoms to reach for the fool's gold ring of safety.

Disclaimer: Harvard's students are in the business of reaching for (one hopes, real) gold rings, but the university has expressed no opinion on the above subjects.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Northeastern

continued from page 59

25,000 Nortel 10/100M bit/sec Ethernet ports and uses Nortel SSL acceleration equipment to provide fast access to its Web offerings.

The university now is tying server software Xythos and Softricity into the portal. The platform will be used to set up personalized computing environments on student and faculty laptops, delivering centrally stored applications over the Web and providing Web-based access to files.

When students register for a class requiring software — such as an engineering student requiring MathWorks' MATLab mathematical computing — the applicant will appear in the "My Applications" section of his or her personal intranet page. When the application is launched for the first time, Softricity streams the application software to the student's hard drive and installs it in a compartmentalized, virtual-machine-like space on the hard computer. This keeps the new software from conflicting with other applications on the machine, including other versions of the same software that the student may have installed, Weir says.

To host this application, the university is using clusters of Red Hat Linux servers — over a dozen in all — which can share the workload of supporting 25,000 users on the back end.

In addition to the "My Applications" section on the portal, a "My Files" space also will go live this fall, allowing users to have folder-based access to online files. To accommodate this, the school recently upgraded its back-end storage from 11T bytes to 45T bytes, installing new disk arrays from EMC, which the school purchased at "a very nice price," Weir says, not divulging numbers. (The "E" and "M" in EMC are university alumni Richard Egan and Roger Marino, each with buildings named after them on campus).

Xythos software is used to manage the virtualized folders and storage resources for the portal. The online storage can be accessed as a logical drive on end users' machines. This will give the feel of local file access, without the awkwardness accompanying some FTP client interfaces, Weir says. Faculty will get 2G bytes; students will get 1G byte.

Weir estimates that NU spends more than $1 million per year on software licensing, often over-buying licenses with broad-based, campus-level licensing plans for applications that might sometimes be used in a few courses. The new system will let the IT staff more closely track what applications are being used and allow the school to be billed for what is deployed.

Weir says his staff investigated thin-client technology, such as Citrix servers for deploying these services, but concluded that the Windows-based terminal model would not meet the university's needs.

He says it is important that software run locally on end users machines, but that better management was needed for what was deployed.

"We don't know if [NU's $1 million in licensing costs] will go up or down" with the Softricity/Xythos system, Weir says. "But we're optimistic. We're anxious to find out." ■

Winternals

continued from page 59

software lets users monitor details of success and failure, space use, and disk and partition information. The reports also highlight the level of fragmentation, what files were defragmented and how long the process took. Reports can be run on a single machine, a group of machines or Active Directory organizational units and domains.

A notification service provides the status of defragmentation operations via e-mail.

With 64-bit support, Winternals says the goal is to balance the amount of RAM a defragmentation process will tie up by using more horsepower to speed the defrag process. Defrag Manager includes auto-detection of processor type so a single client is used for both 32- and 64-bit systems.

The company also has integrated Defrag Manager with Microsoft Operations Manager (MOM) 2005, so users can view events that happen on the Winternals administrative console from within MOM.

The Winternals console, which runs on Windows, has a scheduler and a wizard that lets users configure certain operations to be performed on each hard drive, including consolidating unused space and how often a process runs. Users can pick target systems, either from a network-neighborhood-type interface or using user and computer information stored in Active Directory.

> "The main thing with defrag is hygiene. . . . It really does help in the day-to-day use of your computer."
>
> *Wes Miller, product manager for Defrag Manager 4.0, Winternals*

"The main thing with defrag is hygiene," says Wes Miller, product manager for Defrag Manager 4.0. "It is one of those things that the more you do it, the less you appreciate it. It really does help in the day-to-day use of your computer."

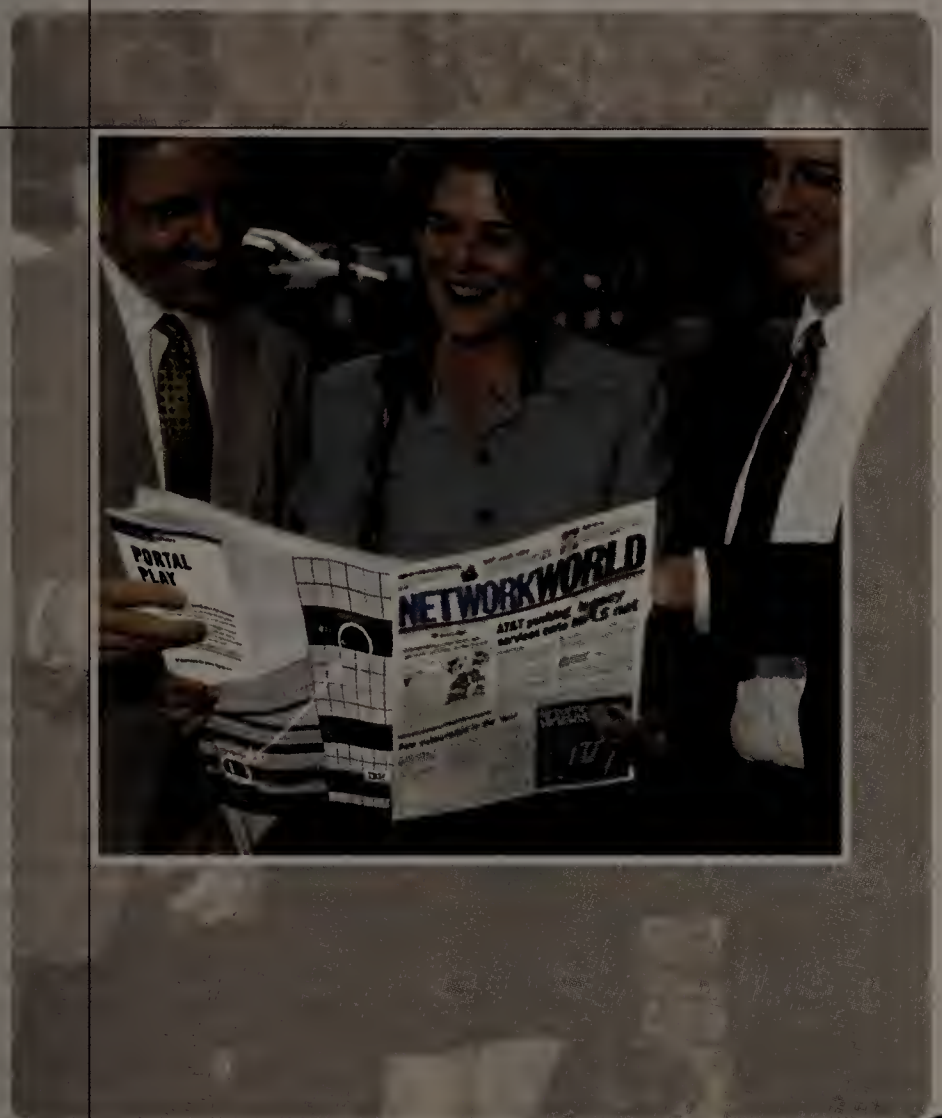
Defrag Manager 4.0 is priced starting at $99 per server and $20 per desktop. ■

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SPECIAL FOCUS ENTERPRISE SOFTWARE

Oracle/IBM battle beyond the database

BY JENNIFER MEARS

No longer satisfied with its role as the corporate database leader, Oracle has been building out its middleware portfolio through R&D and acquisitions and is increasingly going head-to-head with IBM.

"For years, the database has been an extremely vigorous competition between DB2 and Oracle database," says Joshua Greenbaum, principal analyst at Enterprise Applications Consulting. "The heat has gotten more intense because middleware has been added to the mix."

Others, including SAP and Microsoft, also see opportunity as corporate data centers move to environments where data and systems are shared and reused in so-called service-oriented architectures. Middleware — such as application servers, business integration software and data management systems based on open standards and Web services — provides the foundation for this new IT environment.

"Who controls the future of computing is really what this is all about," says Judith Hurwitz, president of Hurwitz & Associates. "All these vendors understand that this is a transitional time for the industry where platforms are evolving, and everybody wants to be the market leader and control things."

Software supremacy

Oracle and IBM are taking their battle beyond the database. A look at where each of them stands:

	Challenges	Strategies
IBM	**Application free.** IBM chose not to get into the applications business, but with Oracle now the owner of PeopleSoft, Big Blue has to make sure it maintains account control with current PeopleSoft customers. **Leader of the pack.** IBM has to be careful not to rest on its laurels as Oracle fills out its portfolio with acquisitions.	**Application agnostic.** IBM isn't tied to any enterprise application, giving customers choice through tight partnerships and services. **Continued innovation.** IBM continues to roll out new features such as native XML support in the next release of DB2.
Oracle	**Image.** Oracle is known best as a database vendor. **Features and functions.** Oracle still lags behind IBM in areas such as messaging and collaboration.	**New message.** Earlier this year Oracle rolled all of its middleware under the name "Fusion" to send the message that it's about more than the database. **Shop 'til you drop.** Oracle is reaching into its deep pockets to buy the technology it needs to compete with IBM and says it's just getting started.

Acquisition frenzy

That is resulting in a flurry of acquisitions, particularly by Oracle and IBM, as the two industry heavyweights move to expand their capabilities. IBM acquired Ascential Software, a data integration software vendor, earlier this year. Earlier this month, IBM said it was acquiring DWL, maker of customer data-integration software, to build out its data management capabilities. Since 2001, Big Blue has made nine acquisitions in information management, says Janet Perna, a 31-year IBM veteran who was general manager of IBM's information management unit until her retirement Aug. 15.

"Information and the integration of information is becoming much more important, because it is the way companies are going to be able to gain insight into their own operations, their customers and their competitors," she says.

Oracle sees the same thing. Its recent acquisitions include database firm Times10, as well as ProfitLogic and Retek, retail-focused information management software vendors. In July, it bought the assets of content integration software maker Context Media. Its Oblix buy earlier this year brought identity management into its information management systems, and last year, the acquisition of Collaxa added a business rules engine to Oracle's portfolio.

The integration factor

The key is to enable a company to take its data, systems and resources and create a platform that allows them all to integrate, analysts say. As a result, customers can expect to see more acquisitions, and internal product enhancements.

IBM, for example, will provide native XML support in the next release of DB2, code-named Viper, which is expected to go into beta release shortly. Earlier this month, IBM upgraded its WebSphere product line, releasing XD 6.0, adding enhanced manageability for grid deployments in which workloads are shifted in response to application demands. Oracle has long focused on grid as the key underpinning to its database and middleware environments.

But while IBM continues to nip at Oracle's heels in the database market, Oracle is coming on strong in the middleware arena, where Big Blue has a comfortable lead.

"Yes, Oracle has had an application server for at least five years, but they were kind of the Rodney Dangerfield of the business for the longest time. They could get no respect," says Peter O'Kelly, senior analyst at Burton Group. "But then they made a hard decision. They started over with this Orion open source code base. They have been tenacious about sticking with it and making investments in it, and they optimized it for Oracle Database 10g. Now it is irrefutably a top contender in the Java space."

In the last year or so, Oracle has been chipping away at its "also-ran" image in the middleware market, analysts say. The latest figures from IDC show Oracle's application-deployment software business growing at twice the rate of the market average.

IBM, meanwhile, still holds a solid position at the head of the pack in the market, which IDC defines as including application, Web and integration servers; message-oriented and transaction-server middleware; and all associated adapters, connectors and gateways.

BEA Systems holds the No. 2 position, with a 12% market share compared with IBM's 37% and Oracle's 7%. But BEA doesn't offer the "suite" of platform features now available from IBM and Oracle.

"The market is changing so that it's not so much about an individual slice of the product stack at this point," O'Kelly says. "It's more about customers saying, 'We want you to be our end-to-end supplier, not just somebody who is solving one part of the problem for us'."

That means customers are looking for databases, application servers, message-oriented middleware and even applications and tools that integrate well, and if they come from one supplier, so much the better, O'Kelly says.

The user view

Online retailer Overstock.com, for example, has used Oracle databases and Oracle financials for years and has been happy to see the company expanding its offerings.

Overstock.com used to write all its code itself. But with a growing number of vendors offering Web-based applications, it's looking to take advantage of packaged products so that it can focus on more strategic IT development, says Shawn Schwegman, senior vice president of technology at the Salt Lake City firm.

"We're finding that Oracle and IBM and other big guys are coming out with a ton of software architecture designed for the Web," he says.

Schwegman says he does "bake-offs" to compare technology, but has consistently been happy with the performance from Oracle. Overstock.com uses Oracle's Fusion middleware — which includes Oracle's application server, business intelligence system, portal and identity management — and is in the process of rolling out Oracle's customer self-service software, he says.

"IBM may have one-up on Oracle on the WebSphere, Web e-commerce side of the house, but I don't think that's going to be too long-lived," Schwegman says. "Oracle owns the database side, and that's such a core component to everyone's Web site. If you own the database and have the ability like Oracle does to then start rolling out these value-added applications, then you're going to have a new kind of competitor."

Oracle is positioning itself as a software vendor that can provide the integrated infrastructure that a corporate buyer needs, from its database to its PeopleSoft enterprise applications — all supported on its flexible, grid-based infrastructure.

"Whereas IBM decided many years ago that they would not be in the application business," Hurwitz says. "They're taking their middleware so that it evolves and becomes wrappers for packaged software that is becoming componentized. Then it almost doesn't matter who the primary packaged application is because if you put the enterprise wrapper around it, then you sort of control the game."■

SERVICE PROVIDERS

EYE ON THE CARRIER
Johna Till Johnson



A proposal for governing the 'Net

Networking people tend to be unusually interested in politics and effective governance strategies. That's because networking is the art and science of making many disparate entities cooperate for the common good — which also happens to be the primary challenge of effective government.

Before the Internet, the defining governance model was monarchy, with Ma Bell as the unquestioned queen, operating with autocratic authority. The Internet broke that model, returning power to the "states" (individual ISPs) and "people" (individual routers), each of which makes informed decisions based on the best-available information.

Thus, many Internet architects associate the Internet model with the best parts of both democracy and the free market. Even the IETF itself, the forum for interested parties to work together on technical projects for the common good, was explicitly modeled after the Athenian democracy.

Did the Internet/IETF governance model work? In many respects, yes. Early on, the IETF produced key protocols at a much faster clip than other network standards bodies (such as the IEEE and the ITU). Although many IETF veterans strenuously object to calling the IETF a "standards body," whatever you call it, the IETF did an outstanding job midwifing protocols and accelerating the 'Net's adoption.

Does the model still work? I'm not sure. In my view, the biggest concerns facing the Internet today are regulatory and operational, rather than technical. For example, how do we encourage providers to respect each other's QoS tags? Is it acceptable for providers to censor traffic for competitive advantage? Should providers be required to devote some of their revenues toward services "for the common good," such as universal Internet access?

The IETF isn't great at these regulatory or operational issues (nor, in all fairness, would one expect it to be).

So what should we do? One answer is to call in the federal government. I'm not a huge fan of government regulation; it can be better than the alternatives, but regulation tends to slow down an industry's rate of innovation. Moreover, the Internet is international, so whose federal government would we turn to as the referee? Yet waiting for the free market to answer these questions doesn't seem to be working, either.

So my suggestion is we need a body like the IETF but providing a forum in which parties focused on operations and economics can work together. Something, in other words, like the National Association of Securities Dealers (NASD), which essentially acts as a referee for the securities industry, setting baseline regulations and overseeing the conduct of member firms.

Call it the International Association of Networking Service Providers (IANSP). Like NASD (and unlike the IETF), participation would be on a per-provider (not per-person) basis — and the IANSP would be chartered with ensuring that service providers play well together. To the extent the IANSP could be self-regulating, it could benefit the common good by streamlining Internet operations — while minimizing the need for governmental interference.

Am I nuts? Quite possibly. Write in and let me know what you think.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Short Takes

■ **Juniper** last week announced that **Speakeasy,** an independent broadband services company, has deployed Juniper's E- and M-series routers for a new Bonded T-1 service. Speakeasy operates a private, national fiber-optic network. Speakeasy's Bonded T-1 service lets customers combine multiple T-1s and add or remove circuits as their bandwidth needs change without making the more costly leap to fractional DS-3s. Juniper's E- and M-series underpin all of Speakeasy's data services, which include traditional T-1, DSL and OneLink dedicated DSL. Speakeasy also uses Juniper's E-series routers to support its VoIP service, and to aggregate traffic.

Convergin promotes cellular-Wi-Fi mix

BY TIM GREENE

Convergin is offering carrier software that could help speed mixed cellular/Wi-Fi phone services that can save businesses money and support multimedia services.

Called Accolade, the software runs on a server in carrier networks and translates signals between legacy wireless networks and networks supported by Session Initiation Protocol (SIP), which tells networks where customers can be reached. This enables carriers to deliver calls to customers based on where they are rather than by simply calling a number.

For example, the software would support a service that calls customers' wireless phones over cellular networks when they are driving, but call the phones over a corporate Wi-Fi network when customers are at work. This requires a dual-mode cellular/Wi-Fi phone.

The advantage of this is that using the Wi-Fi network is less expensive than paying for cellular minutes, and the use of SIP allows companies to add other communications methods such as instant messaging and e-mail, says Joe McGarvey, an analyst with Current Analysis.

Accolade could let service providers migrate their networks gradually to SIP, while keeping their legacy infrastructure in place.

The software also can support signaling in an all-SIP network under the standard network architecture known as IP multimedia subsystem (IMS). This standard defines the network elements needed to support SIP services, and Convergin says its Accolade platform meets the IMS definition of a service capability interaction manager. It can pull together sets of other network elements on the fly to provide defined services.

Because service providers can use Accolade to blend SIP and legacy networks, they can cap their spending on legacy network gear and start phasing in SIP-based equipment, McGarvey says. It also enables carriers that offer only cellular service to keep their cellular infrastructure in place and add on support for VoIP over Wi-Fi services, he says. This could help carriers such as cable operators to integrate wired phone services with mobile phone services via partnerships with wireless carriers that own mobile spectrum and become mobile virtual network operators, Convergin says.

The company says its software could encourage service providers to offer IP-based services. For instance, a carrier could invest in an IP Centrex platform and use it to support Centrex service that extends to IP phones, cellular phones and traditional wired phones.

McGarvey says Convergin competes against Bridgeport, Longboard, Persona and NewStep, but that each company's product has slightly different capabilities. The need for these platforms will rise as phones that can handle cellular and Wi-Fi calls become more available and inexpensive, which will likely be next year. ■

Profile: Convergin

Location:	Herzliya, Israel
Founded:	2002
Funding:	$35 million, MRV Communications and others.
Employees:	30
Product:	Accolade wireless convergence server.
Competitors:	Edge convergence vendors such as Bridgeport and NewStep Networks, and embedded convergence vendors such as Longboard.
Fun fact:	The company name used to be PhoneDo, changed for obvious reasons.

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TECHNOLOGY UPDATE

AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

802.11r strengthens wireless voice

BY PAT CALHOUN AND BOB O'HARA

For wireless telephony, clients such as mobile phones must be able to rapidly disassociate from one access point and connect to another. The delay that occurs during handoff cannot exceed about 50 msec, the interval that is detectable by the human ear. However, current roaming delays in 802.11 networks average in the hundreds of milliseconds. This can lead to transmission "hiccups," loss of connectivity and degradation of voice quality. Faster handoffs are essential for 802.11-based voice to become widely deployed.

The 802.11r working group of the IEEE is drafting a protocol that will facilitate the deployment of IP-based telephony over 802.11-enabled phones. The 802.11r standard is designed to speed handoffs between access points or cells in a wireless LAN. The working group is drafting the final protocol, which should be approved toward the end of 2006.

Another problem with current 802.11 wireless gear is that a mobile device cannot know if necessary QoS resources are available at a new access point until after a transition. Thus, it is not possible to know whether a transition will lead to satisfactory application performance.

Mobile refinement

802.11r refines the transition process of a mobile client as it moves between access points. The protocol allows a wireless client to establish a security and QoS state at a new access point before making a transition, which leads to minimal connectivity loss and application disruption. The overall changes to the protocol do not introduce any new security vulnerabilities. This preserves the behavior of current stations and access points.

When approved, 802.11r will govern the way roaming mobile clients communicate with candidate access points, establish security associations and reserve QoS resources. Under 802.11r, clients can use the current access point as a conduit to other access points, allowing clients to minimize disruptions caused by changing channels.

There are trade-offs among the speed of a handoff, the certainty of communication with an access point and disruption of current communications. A client can stay on its current channel and use its current access point to communicate with other candidate access points. This minimizes disruption to the client's datastream but does not allow the client to determine anything about its ability to communicate with other access points over the air. The client also can change to the channel of another access point.

This allows the client to be certain of the quality of its communication with the other access point over the air but causes some disruption to communication with its current access point.

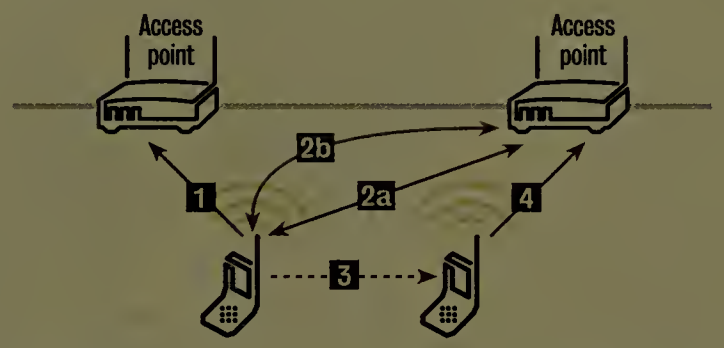
As usage of wireless networks increases, the density of access points may increase to satisfy increased capacity, which will lead to more frequent handoffs. Such environments would benefit from the capabilities provided by 802.11r.

The 802.11r protocol will be a major milestone for millions of wireless users. It is expected to spur convergence of voice, data and video, which will lead to improved functionality, performance and usability for mobile devices. It will bring about faster deployment of 802.11-based technologies and lead to less expensive, more comprehensive security.

Calhoun is CTO and O'Hara is technical leader for Cisco Systems' Wireless Business Unit. They can be reached at pacalhou@cisco.com and boohara@cisco.com, respectively.

HOW IT WORKS: 802.11r

802.11r is a proposed protocol designed to speed handoffs of mobile clients such as wireless phones between access points.



1. Client is associated with an access point, completes authentication and sets up QoS state. This only needs to be done once.
2. While still associated, the client uses 802.11r to complete authentication and reserve QoS resources at a new access point **a)** over the air, or **b)** over the wire.
3. The client moves to the new access point as needed.
4. When the client reassociates at the new access point, it confirms the earlier exchange (Step 2) using 802.11r. The data frame has the benefit of full security and QoS.

Got great ideas?

Network World is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Senior Managing Editor, Features **Amy Schurr (aschurr@nww.com)**

Ask Dr. Internet

By Steve Blass

Our work group has moved to a new building with Internet access but no DHCP service. After setting up 30 computers with static IP addresses, we want to implement a DHCP server but do not have access to the router or any money to spend on a dedicated appliance. I have a Linux system I could use. How do I set up a DHCP server on a Linux system?

If your Linux system has the standard software development tools installed, you can set up a DHCP server without too much trouble. The following describes how to install the latest DHCP daemon software from www.isc.org.

Download the dhcp-xxx-tar.gz file from the software download section. Unpack the file with the command "tar xvfz dhcp-xxx-tar.gz". Move to the newly created directory and type "./configure" followed by "make && make install" to build and install the software. Before launching the DHCP server, copy the file server/dhcpd.conf from the build directory to the file /etc/dhcpd.conf and edit the configuration settings to match your environment. Most of the options are self-explanatory. Set the domain name, identify your DNS servers by their host names, and declare the subnet address range you want to provide DHCP service for. If you get an error message about Dynamic DNS, add the line "ddns-update-style none;" to the global declaration section of your dhcpd.conf file.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.



GEARHEAD
INSIDE THE NETWORK MACHINE

Mark Gibbs

Days of Winrot and OS what-not

There's no doubt that Winrot is one of the greatest IT productivity sinkholes. In case you aren't familiar with the term, Winrot is the creeping, pernicious degradation of the integrity of Windows systems to the point where they run slowly, behave erratically, stop working altogether or all of the above.

The most common cause of Winrot appears to be DLL hell, the popular name for the infernal mess that comes with the cumulative updates and replacements of Dynamic Link Libraries. These changes result in incompatibilities, errors in the Windows registry, and other more mysterious and usually unresolvable issues.

The solution to Winrot is not to clean the registry, find the broken and mismatched DLLs, and remove the accumulated cruft of odd files that Windows, Internet Explorer and sundry programs strew throughout the file system with the wild abandon of cherry trees scattering their spring blossoms at the bidding of the zephyrs of spring (we've had too many late nights, so what?).

Nope, the answer to serious Winrot is drastic and time-consuming. You have to wipe the affected machine and start again. From scratch. Reinstall Windows and then however many updates and patches need to be applied, which will entail more reboots than the mind can comfortably encompass, followed by reinstalling all the applications.

Now if you were sensible, you would have a cloned image of the original Windows installation, but of course you'd still have to do the upgrades. You'd also have another image of the installation with all of your core applications. But it still is going to be death by upgrades. And you still have to re-create all of the application settings. There is no easy way around any of this.

> The answer to serious Winrot is . . . to wipe the affected machine and start again. From scratch.

Our main desktop has Winrot so extensively that among its many new and interesting behaviors, it can easily take 60 seconds for a Word document that is being sent as an e-mail attachment using Word's "Send to" command under the file menu to appear as an e-mail message under Outlook, even when Outlook is running.

Oh yeah, and all my keyboard shortcuts that use the control key rarely work when you first hit the keys — for example, it usually takes two tries to get control-C to work. But not always.

Why are we discussing Winrot? Because a number of you have written to share your pain over this topic. Do we have a solution? 'Fraid not. It seems that the fundamental architecture of Windows makes Winrot inescapable and expensive. So, we're asking for your input:

Do you have any strategies for at least delaying Winrot?

How do you determine when Winrot is so bad that drastic action, such as rebuilding the PC, must be taken?

When you discover intractable, terminal Winrot, do you have any strategies that make it easier to rebuild PCs?

OK. Onto our other topic for the week — running Apple's OS X on a PC. Nope, we're not talking about the forthcoming release of OS X on Intel hardware or using the available Apple Developer Transition Kits. This effort is centered on the OSx86 project.

At the heart of this project is a freeware PowerPC processor emulator called PearPC. Its author describes it as an "architecture-independent PowerPC platform emulator capable of running most PowerPC operating systems" (note that it does, of course, have the usual performance penalties you'd expect of an emulation running at 1/15 to 1/50 of the speed of a PowerPC-based system).

Installation instructions are available for the Macintosh world for Apple's Darwin (the open source precursor of OS X), as well as OS X 10.2 (Jaguar), OS X 10.3 (Panther), and OS X 10.4 (Tiger). Most intriguingly, PearPC running OS X can run under VMware. We have added this to our make-and-do list.

Tell gearhead@gibbs.com what's on your list. For links and notes for this column, check Gearblog (www.networkworld.com/weblogs/gearblog/).



CoolTools

Quick takes on high-tech toys. **Keith Shaw**

The scoop: iPaq hw6500 Mobile Messenger, by HP, $600, or $650 with camera. (Availability in U.S. not yet announced.)

What it is: HP's latest iPaq device (announced last week) includes an Enhanced Data for Global Evolution cell phone, an integrated keyboard with options for corporate e-mail access, Bluetooth connectivity and an integrated GPS radio to support third-party applications for driving directions.

The hw6500 has a Secure Digital (SD) I/O card that can support a Wi-Fi card. It includes the new miniSD card slot, which lets users store data, photos and the like on a miniSD card in case the SD card slot is being used for network connectivity.

It includes a built-in 1.3-megapixel camera (1,280-by-1,024-pixel resolution), an Intel PXA272 processor (312 MHz), a 3-inch transflective color screen (64,000 colors supported), 128M bytes of total memory (with 55M bytes available for users), and a removable, rechargeable lithium ion battery. The device weighs 5.8 ounces and measures 4.65 by 2.8 by 0.71 inches.



The hw6500, on an EDGE network, includes a GPS and integrated keyboard.

Why it's cool: This might be the first Pocket PC-based smart phone (Windows Mobile) I enjoy using. Its features make sense for corporate users. For example, the keypad makes typing easier, and the Bluetooth makes it easier to use as a phone (not having to put the palm-sized device up to your ear to hear a call). HP's iPaq Navigation Software is available as an option, which includes voice-enabled driving directions to locations across the U.S.

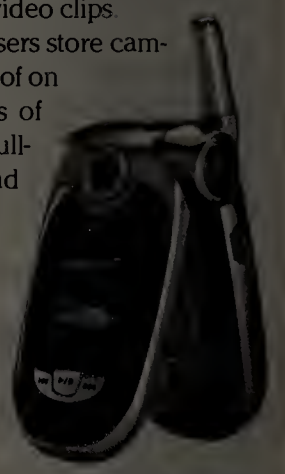
Some caveats: We had trouble with the iPaq Navigation software. Getting maps onto the device caused some glitches, and getting it to find the GPS satellites took time.

Grade: ★★★★ (out of five)

The scoop: Verizon Wireless VX8100, by LG, about $150 (after rebates and service agreement).

What it is: This clamshell-style phone includes features such as a 1.3-megapixel camera, external color LCD (128 by 128 pixels) and internal color display (176 by 220 pixels), and Bluetooth wireless for hands-free headset usage. It can access Verizon's Code Division Multiple Access EV-DO network for downloading video clips.

The VX8100 takes advantage of the SD technology, which lets users store camera images and video images on an external media card instead of on the phone's limited memory. Other features include 64M bytes of flash memory (32M bytes of static RAM), dual speakers and full-duplex speakerphone functionality, Mobile Web 2.0 browser and video messaging support.



The VX8100 phone, with Bluetooth, plays mobile video clips very well.

Why it's cool: My cell phone is at retirement age, but I haven't been able to find the perfect marriage of a hardware phone and a good cellular network. Until the VX8100.

First was the ability to have Bluetooth on the phone for the hands-free headset use. While Verizon has had Bluetooth on some of its other phones, this is the first time it is available on a more affordable model, and one that looks more like a cell phone (others were PDA-based phones).

I also was impressed with Verizon's VCast service — while I still have doubts about the usefulness of downloading video clips to a mobile phone, the clips I watched downloaded easily and played without any jitter. The VCast service cost is still a tough sell — $15 per month, and premium content costs even more — but the network can support the downloads without waiting a long time for the clips, and there is no jitter or latency when you play the clips (basically, we just want some compelling content).

Grade: ★★★★½

Shaw can be reached at kshaw@nww.com.



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On Technology
John Dix

Broadband takes a few steps forward

It isn't the 100M bit/sec that the TechNet lobbying group has been pushing for, but DSL and cable TV broadband providers are making impressive gains in the services offered to home users.

In January 2002 TechNet, a group of 200 CEOs from top technology companies, called on the federal government to "adopt a goal of 100 megabits per second to 100 million homes and small businesses by the end of the decade."

TechNet argues that as a nation we are falling behind other developed countries in terms of building out the infrastructure required to support advances in everything from entertainment to product marketing and delivery.

In a speech earlier this year, TechNet General Counsel Jim Hawley said the "U.S., which once ranked third among all countries in broadband deployment, recently slipped to 13th, according to the International Telecommunications Union."

Other countries, Hawley says, are deploying 20M, 40M and even 100M bit/sec connections to homes, where broadband in the U.S. is typically limited to a few megabits per second. What's more, the pricing is out of whack. Hawley says "100 kilobits of connectivity costs the average U.S. consumer over $3.50 — but the Japanese consumer pays just 9 cents."

That is changing. Take the fiber-to-the-home upgrade that Verizon has started to offer in many of its locales. In suburban Boston, for example, the company just started to roll out a fiber-to-the-home upgrade for DSL customers that supports three levels of service: 5M bit/sec download/2M bit/sec uplink for $39.95/mo.; 15M/2M for $49.95; or 30M/5M for $199.95.

Do the math, and that comes out to 80 cents per kilobit for the 5-megabit service and 33 cents per kilobit for the 15-megabit service — far from the $3.50 average.

Verizon absorbs the cost of running the fiber to a house, installing an optical network terminal and battery backup, running CAT5e to the primary computer in a house and supplying a wired four-port router (wireless is extra).

Cable companies have also upped the ante. Comcast, for example, offers broadband speeds from 4M to 8M bit/sec in many locations.

While a far cry from the 100M bit/sec speeds that TechNet would like, it is heartening to see these service upgrades. When more fiber and fiber/coax hybrid networks are in place, it will be easy for such companies as Verizon and Comcast to scale up services as applications and competition demand.

Now it is simply a matter of spreading the wealth. We agree with TechNet that this basic infrastructure is important to the nation's competitiveness and should be a government priority.

— John Dix
Editor in chief
jdix@nww.com

Opinions

Justice served

Regarding Johna Till Johnson's "Justice is served — for Ebbers and all of us" (www.networkworld.com, DocFinder: 8527):

As through this life you travel, you meet some funny men;

Some rob you with a six-gun, some with a fountain pen.

As through this life you ramble, as through this life you roam,

You'll never see an outlaw take a family from their home.

— "Pretty Boy Floyd," by Woody Guthrie

OK, so Bernie Ebbers is no Pretty Boy Floyd. But this particular modern outlaw took a lot of families from their homes. I work every day with people who lost their retirement, their homes, in some cases (for a while) their notion of self-worth because Ebbers is a robber.

Criminologists can provide the list of reasons we punish transgressors; I no longer remember them all. Johnson hits the key point, though. As long as Ebbers and those like him are sent off to the big house in spite of blaming underlings, others will be more careful. I am sick of those who are quick to accept the accolades of success and demand the privileges of authority but equally quick to disclaim responsibility for failure or deny accountability.

With that level of authority and that degree of damage, these robbers belong in prison, with the common thug, for as long as it takes for the message to sink home — and a little more besides.

Geoffrey Langlois
Madison, Wis.

Keep IPv6 on your list

While catching up on my reading, I came across your article, "Future-proof your network" (DocFinder: 8528). In the July 5 issue of "Government Computer News," the Office of Management and Budget announced that the federal government will migrate to IPv6 by June 2008, while in your article, Tip No. 5 is to cross IPv6 off your worry list. The juxtaposition of these two articles on my desk would have been funny if it had not been for the appearance of my manager asking what our migration path is going to be because his boss had just got a call from the agency CIO.

Time to put IPv6 back on the front burner.

David Lane
Manassas, Va.

Playing the numbers

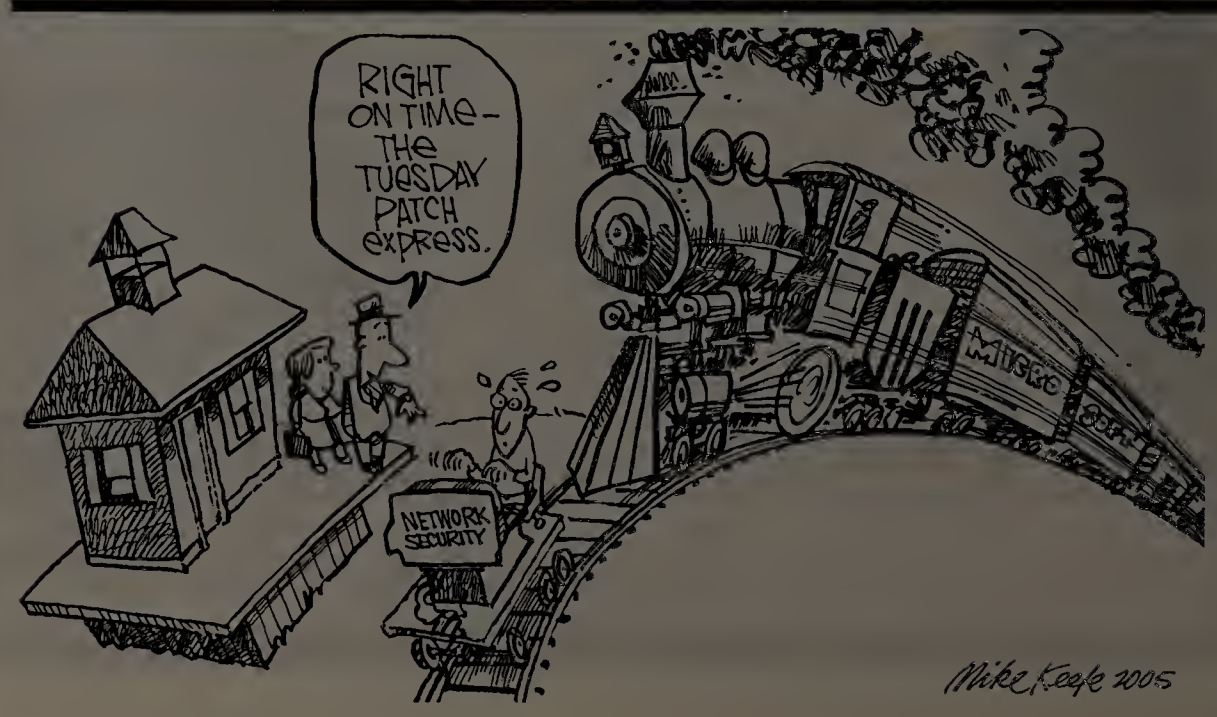
Regarding "Schools battle personal data hacks" (DocFinder: 8529): The fundamental problem for many schools is that they're using Social Security numbers as student ID numbers, so almost every piece of data is sensitive personal information. State schools are probably the worst at this. If they assign their own student ID numbers, then much less data needs protecting — knowing that Jane Doe, Student #123456, got a B on an exam isn't as sensitive as knowing that Jane Doe, Student #987-65-4321 got a B, and professors routinely post this kind of thing on their doors. There's still a need for protecting private information, and schools still need to be more careful than most of them are, but it's much easier to protect if you avoid spreading sensitive information all over the place.

Bill Stewart
Mountain View, Calif.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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TOTALLY UNPLUGGED

Ira Brodsky

The well-connected laptop

Wi-Fi has become a standard feature on laptop PCs since Intel introduced its Centrino chipset. About 80% of the more than 50 million laptops expected to ship worldwide this year will include built-in Wi-Fi support.

As welcome as Wi-Fi connectivity is, it has three major weaknesses. Wi-Fi service is available only at isolated hot spots, found mainly in hotels, airports and coffee shops. Because Wi-Fi uses a shared connection, throughput can fall through the floor at well-attended conferences. And Wi-Fi service lacks the seamless roaming that mobile phone users have come to expect.

Now that laptop users have been given a taste of wireless, it's likely that users will demand ubiquitous access, and the technologies to make it happen are finally coming together. But there are some important technical and business challenges the industry must addresses.

Properly constructed, 3G mobile phone networks provide access at DSL speeds anywhere you can use your cell phone. Today, business users can access 3G wireless services from their laptops using adapter cards from companies such as Novatel and Kyocera. Operators such as Verizon Wireless offer "all you can eat" 3G wireless service for about $80 per month.

Expect to see laptops with built-in 3G wireless in addition to Wi-Fi in 2006. Over time, laptops will integrate additional wireless services, such as 3G multicasting (for downloading multimedia content), WiMAX and GPS for location-based services.

If that sounds too optimistic, note there are already mobile phones that support multiple frequency bands and multiple standards. Several manufacturers are even developing handsets integrating VoIP over Wi-Fi, also known as Vo-Fi.

> The business challenges . . . are more daunting than the technical one.

The business challenges of integrating multiple wireless technologies in laptop PCs are more daunting than the technical challenges. There is no technical reason why 3G cellular and WiMAX can't be added to chipsets supporting Wi-Fi. It's the relationships between laptop manufacturers and 3G operators that could get complicated.

Will laptop manufacturers offer different models for use with Cingular, Verizon and Sprint? Or will one model let users choose from among multiple operators? If both free Wi-Fi and subscription 3G services are available, which will the laptop try to access first? And how long can wireless operators get away with charging $80 per month to laptop users? Most likely, we will see service packages to suit different budgets, and software that waits for a Wi-Fi connection to send non-priority traffic.

Companies such as Crown Castle and Qualcomm are planning multicasting services that could greatly enhance the laptop experience. Instead of transmitting multimedia content one-to-one, content will be delivered one-to-many. That will make the delivery of popular news, education and entertainment content much less expensive.

The integration of Wi-Fi in laptop PCs has opened the floodgates to personal broadband. The technical hurdles have fallen; the business hurdles are next. But the last 20% of product development — the look and feel, packaging and third-party relationships — is often the hardest part.

Brodsky is president of Datacomm Research of St. Louis. He can be reached at ibrodsky@datacommresearch.com.



REALITY CHECK

Thomas Nolle

The FCC and DSL: New murk?

On Aug. 5, the Federal Communications Commission leveled the playing field between DSL and cable modem data services, ruling that both are information services and not subject to common carrier regulation. This decision could have a significant impact on the industry, particularly on some vendors.

But the DSL order is not simply "no regulation for DSL," because the Telecom Act requires the RBOCs to offer information services out of a separate subsidiary. That subsidiary might share lines or obtain transmission/connection services from the incumbent or regulated part of the RBOC, but the same offer must then be made to competitors. To obtain any meaningful relief from regulation under the order, the RBOCs have to move pretty much all of their DSL infrastructure to a subsidiary.

The good news is that pushing DSL into a subsidiary sidesteps some of the regulatory issues that could have hampered IPTV deployment. The Alcatel/Microsoft solution for IPTV requires special infrastructure modifications in multicasting broadcast TV that might have collided with sharing rules had they been part of a regulated service. Now they aren't, so this is certainly good for Microsoft and probably good for Alcatel.

The reason it's only "probably" good for Alcatel is that the order opens a can of worms regarding how DSL and voice now coexist. It also opens up the question of the best DSL architecture for combined data, voice and video. Recall that the FCC's August "deep fiber" ruling paved the way for major RBOC RFPs for IPTV. What might the new ruling generate? Since we don't know, we can't be sure that Alcatel's offerings will be optimum.

Voice is problem No. 1. Today's DSL user is almost certain to get voice, as well, and on the same line. This means the regulated voice service and unregulated DSL service have to be joined somewhere, most likely at the place the copper part of the delivery system terminates in a fiber remote or a central office DSL access multiplexer. How does that piece of gear get divided between subsidiary and regulated RBOC? No one really knows. If a single device provides both voice and DSL, some rules for joint ownership of that device, or collocation of unregulated DSL cards in a regulated fiber remote, will be required. Whatever is offered then has to be shared with competitors, so the RBOCs will be looking for creative approaches to minimize their risk, and vendors will be rushing to accommodate them. Alcatel might or might not have the best approach.

> It's unlikely that all this confusion will hold up DSL deployment, or even IPTV.

In the IPTV area, many vendors, and even the DSL Forum architectures, have focused on an architecture designed for regulated DSL services — which we don't have anymore. While Alcatel might have taken a risk introducing features such as multicasting into the regulated DSL infrastructure, now that the infrastructure is unregulated it might turn out Alcatel wasn't aggressive enough.

The big question the order leaves is the status of overlay services, such as VoIP, which are delivered over an Internet connection no matter what company provides it or whether it's regulated. The FCC said it is adopting a set of principles that will guide how to treat consumer rights, open access to IP services via the Internet and so on. However, the commission didn't include these principles in the actual order, so they have no legal standing.

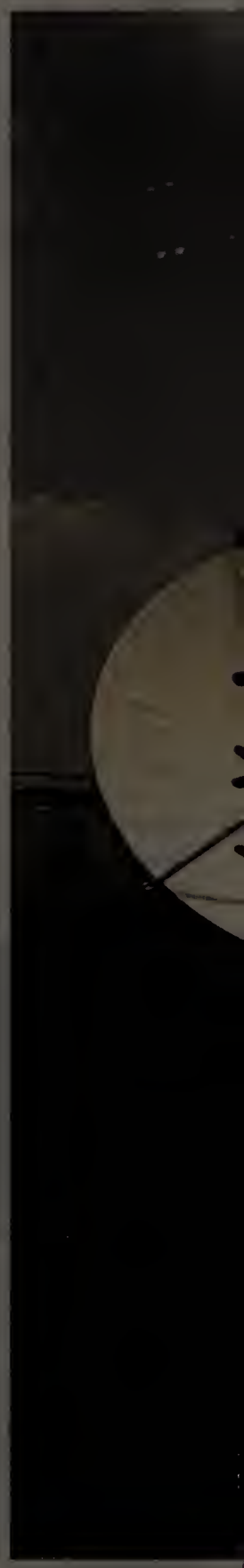
Some of the missing details might be provided in the final text of the order, not expected until September. There also is legislation before Congress that would nail the door shut on any appeals to this order and provide some guarantee of consumer rights, such as VoIP over anyone's Internet connection.

It's unlikely that all this confusion will hold up DSL deployment, or even IPTV. The simple fact is that the RBOCs have known the direction the wind is blowing for some time and have laid their plans. Competitors such as the interexchange carriers have been bought or marginalized. The FCC finally has reached the goal that former Chairman Michael Powell set years ago: bimodal competition between cable companies and RBOCs. Let's see whether it works.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at (856) 753-0004 or tnolle@cimicorp.com.

CLECs play a new tune

COMPETITIVE LOCAL EXCHANGE CARRIERS REVAMP THEIR BUSINESS MODELS IN ORDER TO STAY ALIVE.



BY JENNIFER JONES

BATTERED BUT NOT BROKEN, THE INDUSTRY'S LARGEST REMAINING CLECs are sharpening their focus on the enterprise and promising WAN services to those corporate buyers who must piece together coverage across dispersed organizations.

Only a handful of national CLECs have survived the onslaught of financial and regulatory misfortune that has hit the industry since the 2001 telecom heyday. In fact, these providers — which strive mightily against the former Bell giants — recently suffered another regulatory setback.

The FCC this spring softened the rules around network unbundling, making it harder and more expensive for the CLECs to gain access to network infrastructures that belong to ILECs (incumbent local exchange carriers). Add to this the fact that the big competitors of CLECs keep getting bigger, as evidenced by the looming SBC/AT&T and Verizon/MCI mergers.

This FCC decision is probably a death knell for CLECs clinging to the hope that regulators will pave the way for reselling cheap local access. "If you are a CLEC whose entire strategy is built around selling unbundled network services, you probably ought to find other work," says Mitchell Brecher, an attorney specializing in FCC matters at the Washington, D.C., law firm Greenberg Traurig.

On the other hand, alternate carriers touting enhanced services and positioning themselves as national providers stand a much better chance of surviving. Specifically, experts predict that a few of the larger, facilities-based CLECs, such as XO Communications, WilTel Communications, and Global Crossing, will hang on and turn increasingly to business customers for much-needed revenue.

"Most of the larger CLECs are doing OK and are keeping their heads above water," says Gartner analyst Alex Winogradoff. But he warns the remaining CLECs not to depend on subsequent regulatory relief. "Don't say, 'Woe is me,'" he advises. "Go out there and try to get contracts."

Many CLECs are doing just that and are finding that corporate deals seem to be there for the taking. Especially ripe are organizations with far-flung outposts that force buying officials to come up with patchwork coverage.

Bill Franklin, manager of Fedders Corp's IS infrastructure, says his company considers the entire spectrum of carrier options when planning coverage. "We generally check the market for all carriers, including alternative providers operating in the target markets." Global Crossing is one of the carriers supplying services to Fedders, a Liberty Corner, N.J., manufacturer of air conditioners and humidifiers.

Because corporate telecom executives often must include multiple geographic areas when charting connectivity strategies, many reduce buying decisions to a set of basic criteria. "When we decide on a telecom provider, there are a few things we consider; namely, quality of service, cost and market availability," says John Archer, vice president of operations at XM Satellite Radio.

Size matters

Enterprise buyers also consider a carrier's size, as measured by the number of circuits in that provider's infrastructure. For instance, XM has pulled XO into its pool of carriers, largely because in particular markets, XO was able to make available an abundance of circuits and beat such competitors as Verizon and Qwest on price. "Mostly we look at availability and cost and the parallel between the two," Archer says.

Growing large enough to handle enterprise accounts, however, can be difficult for a CLEC. "After all, the two biggest CLECs were AT&T and MCI, so the average size of these carriers has decreased substantially," says Bob Rosenberg, president of Insight Research.

In many cases, the largest CLECs, such as Global Crossing and WilTel, grew to their current size by building out facilities once used almost exclusively to sell wholesale voice and data service to other carriers, a market the two providers still mine alongside other players such as Level 3.

Slightly different was DSL provider Covad's strategy, which involved expanding its focus after constructing major business and residential DSL infrastructures. Covad now offers corporate customers such services as VoIP and virtual Private Branch



Exchange. Meanwhile, other CLECs swelled through acquisition, such as Broadwing Communications, which snapped up Corvis Equipment and Focal Communications.

Finally, there are alternative providers, such as XO, which went after smaller corporate customers in second-tier markets. "We built our own network by first focusing on those customers with five or six or even less lines. Our focus has changed in the last two years, and we've moved to larger customers," says CEO Carl Grivner. He describes XO's typical customer now as a business with 300 to 400 retail outlets near the carrier's networks.

CLECs need to go the extra mile

Although the reach of a carrier's infrastructure is important, corporate buyers will select smaller players, if they can prove financial stability. "Enterprise customers will look to CLECs to comfort them — to demonstrate wherewithal. And that is an uphill battle in the telecom industry, where the bigger players are often viewed as the most stable," says Gartner analyst Ron Cowles.

Indeed, seasoned buyers say they are open to hiring CLECs but acknowledge their need for reassurance. "Our scrutiny of vendors of any size has not changed over the years. We've always been diligent about researching our partners' ability to deliver service, and a financial review has always been a part of the process," says Tony Maceroli, managing director of IT for Fitch Ratings, a New York financial company. Fitch Ratings tapped WilTel as one of its telecom suppliers.

Maceroli quickly adds an important caveat: "We don't generally deal with start-ups." Instead, his company looks for "a traceable track record," he says.

Another key factor is proof that a provider has strong partnerships with other carriers, says Franklin of Fedders. "We consider the range of services offered

and any relationships the carrier might have with other carriers to extend or enhance those services," he says.

Carrier partnerships also go a long way in assuaging corporate buyers by guaranteeing that a CLEC has made arrangements for continuation of service. "We look for assurance that the carrier has the ability to complete the implementation and to provide service and support through the terms of our agreement. Those assurances could include prearranged contingency service and support agreements with their carrier-partners," Franklin says.

Mining the middle

Situated between the biggest alternative carriers and the smallest CLECs, which simply resell ILEC service, are a pack of midsize carriers. Many are largely unprepared to meet the needs of major corporations and will instead pursue corporate accounts mostly in second-tier cities.

"A few CLECs will remain by becoming very regionally based and very customer-focused in second- and third-tier markets. These are areas not dominated by the sales teams of Verizon or Qwest and are places where excellent customer service makes a difference," says Insight's Rosenberg.

These middleweights must become incredibly selective when planning their efforts, adds Anthony Christie, Global Crossing's CMO. "They will be very specific about their target market and go deep into that market," he says. "Plus, they have got to be thinking about full IP service suites, voice, data and hosting services, because they will want to be one-stop local shops."

For some CLECs, regional success is within reach, according to Gartner's Winogradoff. He points to such providers as ITC DeltaCom, in West Point, Ga., which is concentrating mostly on corporate accounts in the Southeast and Mid-Atlantic regions. CLECs PaeTec Communications and Primus Telecommunications are gaining ground with VoIP and other services in limited markets.

Larger CLECs and their midsize counterparts do share certain tactics. Both try to exploit the less-than-favorable customer service reputations often associated with the ILECs. At the same time, all play up their nimbleness as smaller, alternative providers.

In these two areas, the pending megamergers could wind up playing to the CLECs' advantage. "Many of these CLECs are now really focused on catering to the business client. If the CLECs move quickly enough, they might be able to win customers from the merged companies," offers Gartner's Cowles. "They can be ready to show higher quality if the new, integrated companies slip up."

And slip-ups are bound to occur, some CLEC officials insist, especially given the level of distraction pending mergers pose. "The companies involved become very internally focused by necessity. That creates market opportunities," says Tony Tomae, WilTel's senior vice president of marketing.

Indeed, within enterprises where telecom needs are constant, CLECs have a good shot at sealing deals to deliver crucial services. "It basically boils down to the ability to do the job at hand," Fitch Ratings' Maceroli says.

Jones is a freelance writer in Vienna, Va. She can be reached at Jjwriterva@aol.com.



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Total score		**3.63**

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4: Very good.
3: Average.
2: Below average.
1: Subpar or not available.

Xirrus XS-3900 offers out-of-this-world Wi-Fi capacity

BY TOM HENDERSON, NETWORK WORLD LAB ALLIANCE

Imagine 1,000 Wi-Fi users in a conference room or airport connected to a single device and not hearing complaints about their connection speed. That's the heart of the Xirrus XS-3900, a wireless switch with 16 discrete access points encased in a ceiling-mounted housing. The set of integrated access points connected via internal switching aims to give a 2G bit/sec. (full-duplex Gigabit Ethernet) transmission vehicle for dense Wi-Fi needs.

We tested the XS-3900 and found that it will support more than 1,000 concurrent users, but only if you can spread a majority of 802.11a-capable clients/users with them. We found some very good features, yet some downsides (including one security hole) that concern us.

Giant smoke alarm or UFO?

The XS-3900 is an appliance that looks like an overgrown smoke alarm (even Xirrus uses this analogy) with LEDs that give it an extraterrestrial feel. The unit we tested supports 802.11a/b/g, and needs the 802.11a component because of overlapping channels in 802.11b/g. Four simultaneous 802.11a/b/g access points with dedicated channels are supported, joined to 12 802.11a access points with dedicated channels. The 802.11a access points have antennas with 60-degree dispersion and two layers offset for six channels on each layer. In our tests this gave very good 802.11a coverage. External 802.11a/b/g Wi-Fi antennas can add to the unit's range and coverage, but this wasn't tested.

The four 802.11a/b/g antennas, which have 180-degree dispersion, are overlapped by 90 degrees for additional coverage, and can all share the same Service Set Identifier (SSID) or have independent ones for each band (two total SSIDs). The 16 antennas, when used together, provide a large radial/axial coverage area, with focused high-gain antennas that also push dispersion (the signal) farther than regular access points. The XS-3900 is designed to handle 1,024 users, or 64 users per IAP. In theory, the bandwidth afforded to each user within this context at Gigabit Ethernet rates should yield 128M bit/sec.

Installation

The lightweight unit (less than10 pounds) is designed for ceilings, but because of its power drain cannot use Power Over Ethernet and needs an AC or DC (different units sold separately) power connection. The LEDs, easily understood by their position, give a visual indication of what's going on, including power status, traffic activity and errors. The unit's power switch, hidden for security reasons, becomes inaccessible when the unit is installed.

The device has two Gigabit Ethernet ports, which can be configured for failover, and a 10/100 Ethernet interface for management. The XS-3900 is designed to connect to a switch port rather than an Ethernet hub, and we found this design helps availability, and to a smaller extent, load-balancing user streams.

We installed the XS-3900 on a switched Gigabit Ethernet network rather quickly (see "How we did it," DocFinder: 8540). Like most access points, the management Web pages let us assign channels, and give Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA) or 802.1X/RADIUS authentication choices.

These choices affect all the channels — you don't get a mix of some channels with one type of authentication and others without. Guest accounts can be created, but are done under the aegis of whatever security method is employed.



The LEDs on Xirrus' XS-3900 give a visual indication of power status, traffic activity and errors.

Performance

Associating clients to the device was speedy. We used 802.1X authentication to emulate a conference room environment, one with 1,024 notebooks logging on at the rate of about 125 per minute. The XS-3900 can take it — the full 1,024 associations with 802.1X. We also clocked a maximum of 1,100 associations, but did not track the impact of all 16 channels loaded with traffic. But we believe the unit can handle its rated user base maximum, since client duty cycles are typically irregular.

However, when we used its integrated RADIUS server, it couldn't take on more than 200 clients in our tests. The unit's RADIUS server is designed for smaller implementations — companies needing a higher user count will likely have RADIUS employed.

Using 802.11g FTP uploads and downloads on single channels, we were able to max the XS-3900 at 2.35M bytes. on the 802.11g channels, and 2.66M bytes on the 802.11a channels, which puts the XS-3900 at the top of the speed categories for access points we've tested. We could log on more than the recommended 64 users per channel, but we found that sessions degraded quickly when we did this. The XS-3900 did well in balancing connections across available channels, even through most client/user drivers try to seek the lowest channel number, which fill quickly.

Radio sensitivity is strong in the XS-3900. At distances where data rates normally have fallen back to slower speeds, the XS-3900 had consistently higher transmission rates when we tested the unit in our parking lot (free-air) tests. When all 16 channels are considered, or when 802.11b/g or 802.11a are seen independently, the unit has a very good 360-degree dispersion. This means that if all channels/radios are used, the dispersion characteristics of the XS-3900 are highly desirable and predictable. Channels can be turned on and off (and/or have the power manually adjusted) to correct power reduction or airspace co-channel interference.

Managing the unit

All management and control is done through a Web page or a terminal SSH (or telnet, see below) logon to the unit. The Web page is well organized, though the help screens

See Xirrus, page 76

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Xirrus
continued from page 74

weren't yet working on the unit we tested (Version 1.1.3). The 16 individual access points can have highly articulate control placed on them.

We liked the Express Setup selection, which lets the unit listen and choose its own channels and power settings relative to its environment. This feature worked around fixed access-point channels very well (for situations where you have a wireless environment and don't want to adjust those channels). The system also used an unusual technique to find the address of our upstream DNS server, rather than the local DNS forwarding device we used. These comparatively sophisticated environmental searches will be a huge aid to DS-3900 installers.

The integrated RADIUS server isn't recommended for large environments, though we could proxy connections easily to an external RADIUS server (FreeRADIUS by OpenSSL). Security support includes WEP (not recommended for security), WPA (with 802.11i-style proxy authentication, TKIP or Pre-Shared Key), and AES. It is possible to use an external linking access control list to permit access by MAC address, though these are easily spoofed and just a basic sort of admittance control.

Our concerns

Incredibly, telnet can be used to manage the unit, and the unit has an easy-to-guess initial password (which can be changed, fortunately). SSH can also be used, but we found no way to turn off telnet access, though each Ethernet connection can have management on its interface disabled entirely, leaving a serial port connection as the only way to manage the device. We'd rather see telnet disabled entirely, because it is so easily cracked.

Second, there are so few 802.11a-capable devices in many environments. Of the four 802.11a/b/g interfaces, only 256 (we estimate a maximum of 300) users can log on without highly degraded experiences. Companies that invest in 802.11a technology will be highly rewarded just by the additional available access provided in the XS-3900.

While the documentation that comes with the XS-3900 was easy to understand, the help screens in the HTML user interface were missing. In addition, owners don't have ready access to the Xirrus Web site support section (at the moment, it's for resellers only), which leaves organizations purchasing the product to rely on the resources of their reseller/service organization, which might or might not be acceptable.

Dense decisions

The increase in capacity and its high-density design make the XS-3900 worth its price. With enough 802.11a clients in an environment, we believe companies will benefit from this high-density access-point system, once the security and other concerns are addressed.

Henderson is principal researcher for ExtremeLabs in Indianapolis. He can be reached at thenderson@extremelabs.com. Laszlo Szenes of ExtremeLabs contributed to this story.

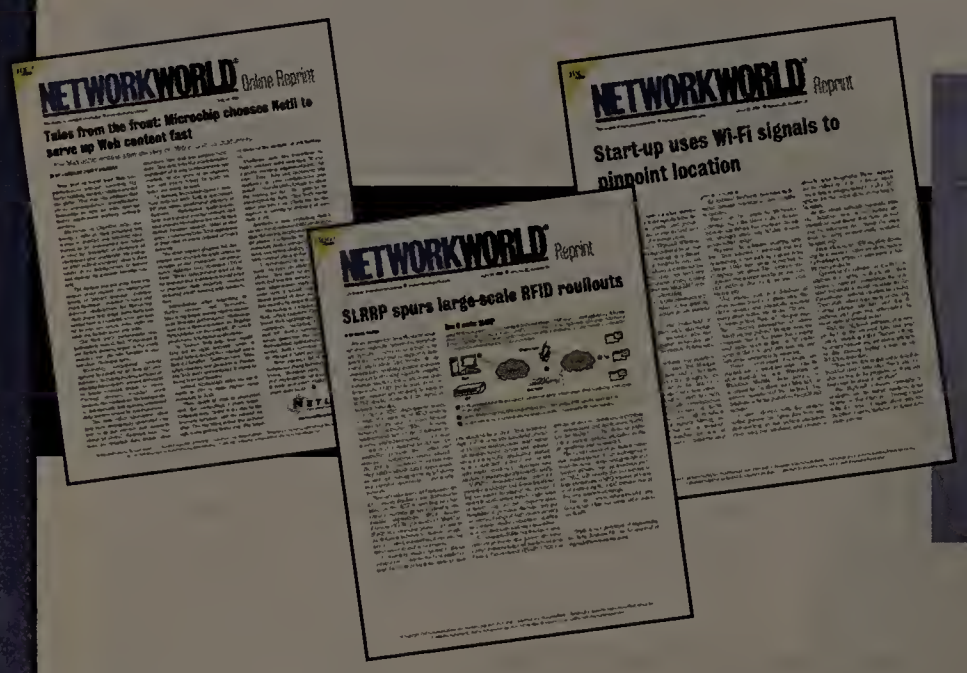
Global Test Alliance

■ Henderson is also a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more information, go to www.networkworld.com/alliance.

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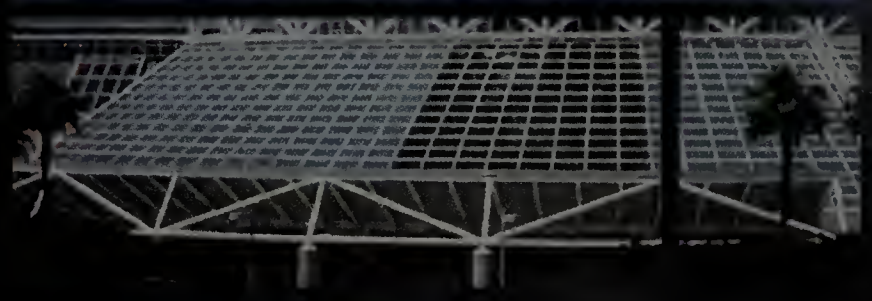
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What the wiretap laws mean to storage managers

BY MIKE KARP

So you've got your e-mail backed up and archived, and the users are happy. The compliance audit was run yesterday and indications are that what was supposed to be available was, in fact, stored safely, journaled and is available when needed.

Even better, your splendid management of Outlook is delivering on your promise to the boss "to conform to all corporate guidelines and regulatory requirements, no matter what they throw at us!"

Time to go upstairs and have that nice cup of management coffee. You make your way up to the executive offices. You turn the corner and . . . stop dead in your tracks. There, between two largish individuals, is your CEO, being led off in handcuffs and muttering "... but it was only e-mail...."

It turns out that a bunch of other laws other than the ones relating to compliance also apply to e-mail, and it seems as if your job may not be over quite yet after all.

On Aug. 12, *The Boston Globe* reported on a federal appeals court in Boston that found that a businessman charged with intercepting and reading his customers' e-mails can be tried under federal wiretapping statutes. This case has been going on since 2001, when a federal wiretapping law was used against a storeowner who intercepted messages to his customers from an online competitor. The case has been in and out of the appellate court system, with the defendant's lawyers saying that the wiretap law did not apply because the e-mail was intercepted while it was stored in the computer's memory and not when it was traveling across a network.

On Thursday the appeals court ruled that "electronic communication includes transient electronic storage that is intrinsic to the communication process, and hence that interception of an e-mail in such storage is an offense under the Wiretap Act." In other words, now it looks as if management can't read someone else's e-mail without the permission of the intended recipient.

So just because you have your company's compliance officer off your back for the time being doesn't mean this is time to get complacent. Just see www.networkworld.com, DocFinder: 8538) for a description of what is going on.

If you really want to dive into this a bit deeper and see how all this may impact First Amendment rights, read the friend of the court brief prepared by the Electronic Privacy Information Center at DocFinder: 8539.

Karp is senior analyst with Enterprise Management Associates. He can be reached at mkarp@enterprisemanagement.com.



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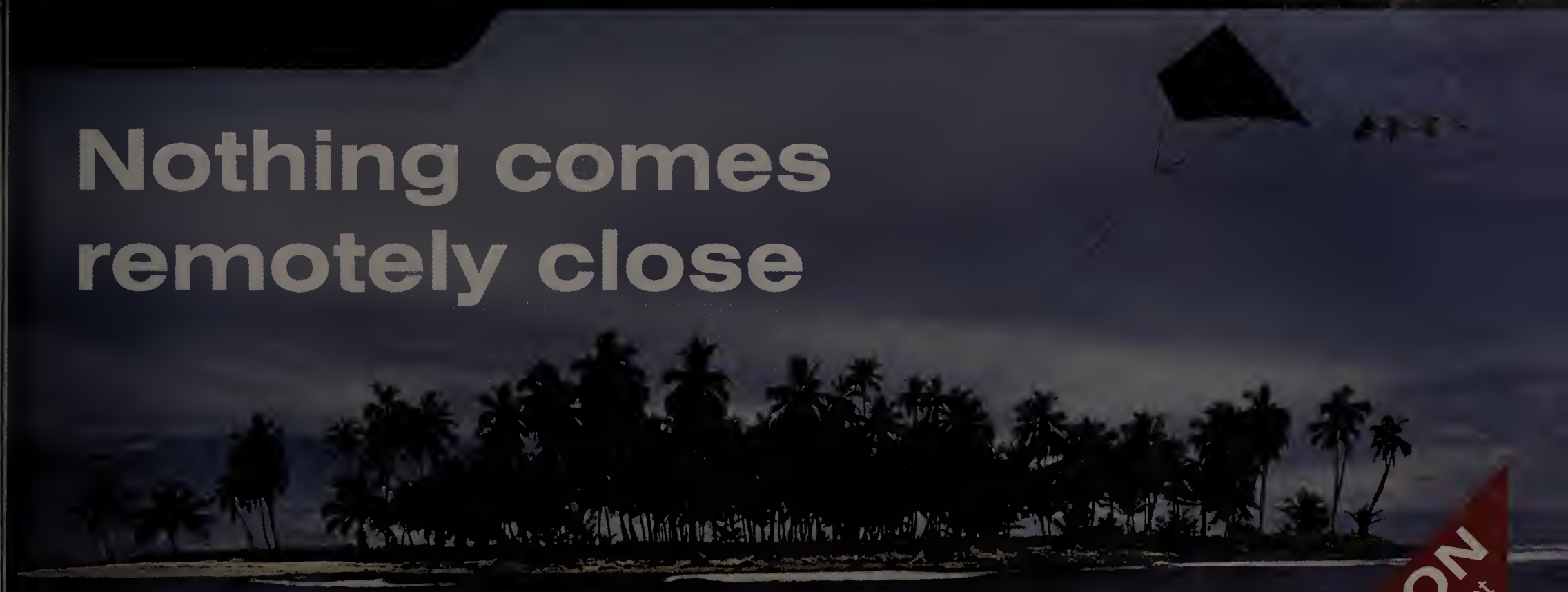
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Shoes to fill

As IT talent wars reemerge, employers aim to retain their staffs by exposing them to new technology and offering improved benefits.

BY CAROLYN DUFFY MARSAN

The industry hasn't returned to the crazy days of dot-com mania, when companies provided free meals, gift certificates, concierge services and other perks to retain top IT talent. However, IT executives are reporting an increase in employee turnover and the need to focus more on retention strategies.

"There's been a return to hiring as the economy has strengthened, and certainly concerns about retention of talent connected to legacy systems and critical technology and business initiatives," says David Foote, president of Foote Partners, an IT research firm. "Our findings indicate the reemergence of talent wars, but on a smaller scale than in the past and more industry focused."

One of the factors driving the need for IT expertise is that employers are becoming more selective about which network operations and applications they outsource. Some organizations that haven't upgraded their software or hardware in a few years have reached the point where they need to overhaul their systems, while merger and acquisition activity spurs demand for systems integration, Foote says.

With increased demand for IT talent, salaries are going up. In a study released last month, Foote Partners found that overall pay for noncertified technology skills had grown 3.8% and certified technology skills 1.3% in the first half of 2005. The skills with the greatest pay growth were operating systems, networks, database and applications development. In contrast, 18 months ago pay for these same skills were dropping 7% to 10% per year.



STUART BRIERS

David Kennedy, director of IT at Stone Energy, says he's been able to retain staff in his 26-person IT shop because of excellent benefits and the opportunity to work on the latest network technology. In fact, most of his staff have been with the company for at least five years.

Stone Energy's network connects its headquarters in Lafayette, La., with key offices in New Orleans, Denver and Houston. The network also serves far-flung users on oil and gas production platforms in the Gulf of Mexico, the Rocky Mountains and the plains of Wyoming. It supports leading-edge applications such as VoIP, WiMAX and remote data storage and application.

"We've been real successful at retaining our WAN and routing guys," he says. In addition to giving employees access to hot technologies, he attributes the longevity to the company's benefits package. "We try to be at market rates for salaries, but we have a multi-legged stool with our health benefits, 401 (k), restricted stock grants and bonuses. When you put it all together in a package, it's hard to find anything that good elsewhere."

Kennedy says he's receiving many résumés from IT workers who want to join his staff. He plans to hire a systems analyst, systems engineer and development intern for his team.

"I'm seeing a lot more people come and knock at my door," he says. "They're getting more confident in the market. In the past, you were happy to have your job and you were just quiet about doing it. Now I think more folks are looking."

Organizations such as Stone Energy that are upgrading their networks and deploying new technology are finding it easier to retain their IT staff.

Michael Benedetto, associate director of IT at the American Museum of Natural History in New York, says that during the last 18 months his staff has overhauled the infrastructure and security systems on his organization's network. Among the museum's recent purchases are leading-edge DNS appliances that replaced aging Unix servers running Berkeley Internet Name Domain software.

In addition to raising the security profile of the network through DNS appliances, patch management and intrusion detection, the museum is upgrading its switching and routing infrastructure, adding multicast video and deploying wireless.

So far, Benedetto is not seeing much turnaround in his 30-person IT shop, five of whom are dedicated to network operations. The museum is a nonprofit organization, and its IT salaries are comparable to other nonprofit organizations in the New York area.

"We're not having a mass exodus of people. The market is definitely opening up a little bit, but a lot of people have stayed because of where we work," Benedetto says. "I can't tell you one reason why everyone is staying, but [access to new] technology may be a big part of it. Because we do most of our work ourselves, most of our people are challenged."

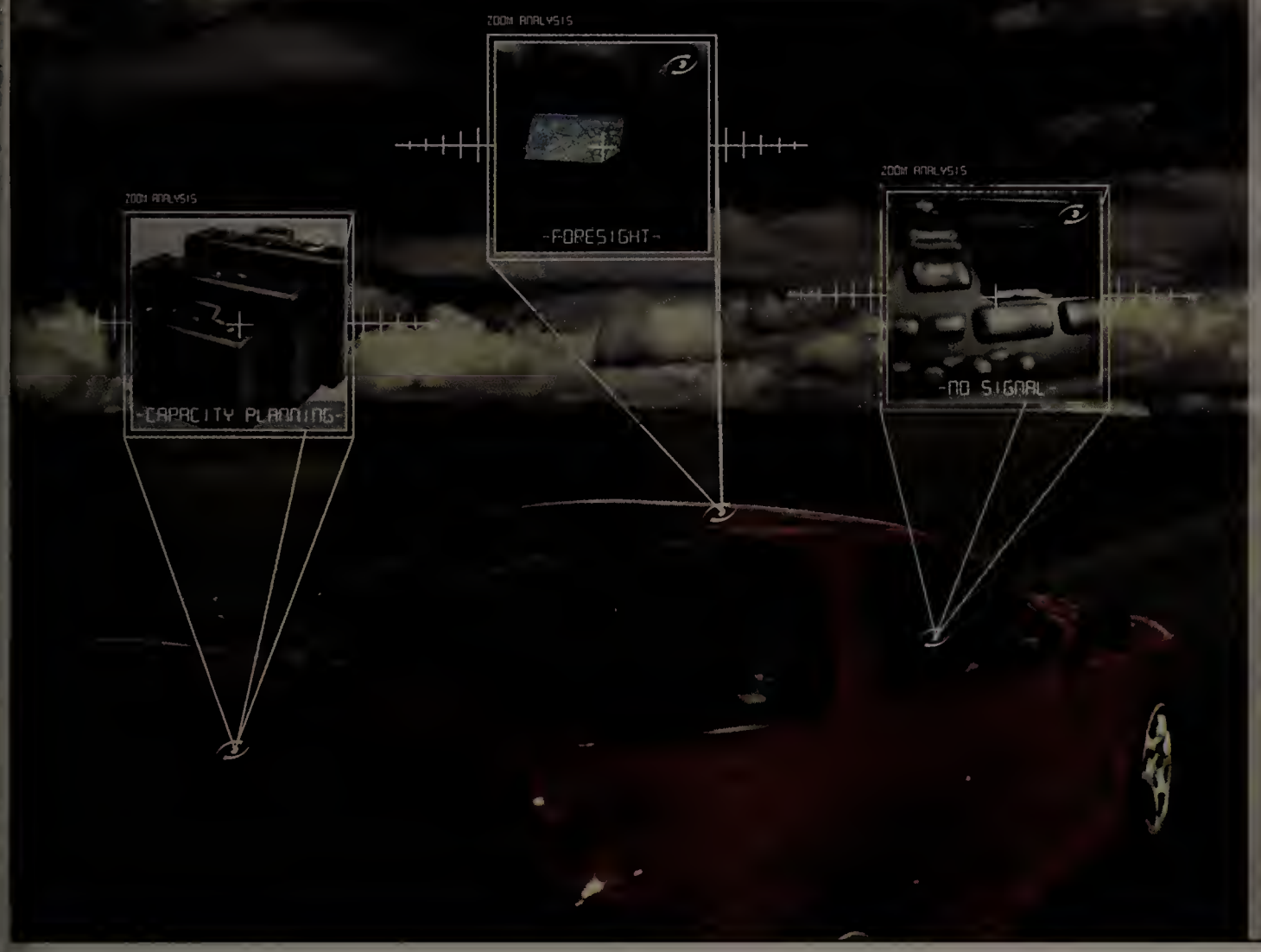
Improving benefits and offering work-from-home policies is not enough to ensure employee retention, says Barbara Marchetti, president of Preferred Resource Group, an Andover, Mass., firm that offers IT recruiting, staffing and training advice.

"If companies don't take the time to sit back and address how they're going to attract and retain IT talent, they're going to be back in two-year hiring cycles," Marchetti says. "What gets IT folks jazzed is exposure to the newest and the latest technology."

Marchetti recommends that companies provide ongoing technical, business and professional training for IT staff.

"IT folks need an education in how IT affects the enterprise, both for their internal and external customers," she says. "Companies need to provide them with access to developing skills that go beyond technology. . . . They should be part of cross-functional teams where business initiatives for the company are being looked at, not just IT." ■

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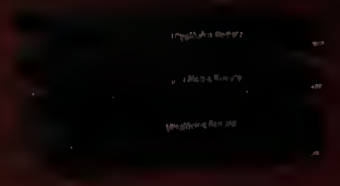
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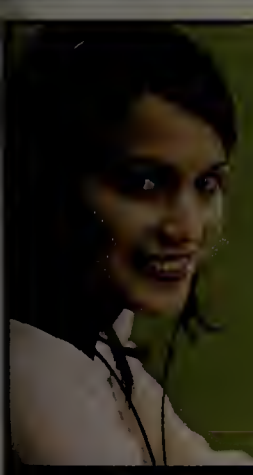
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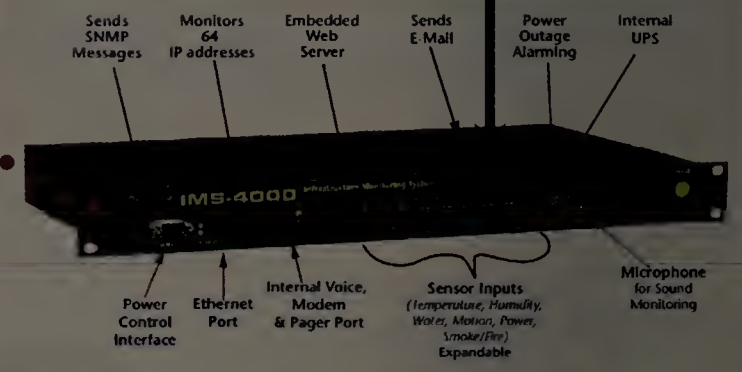
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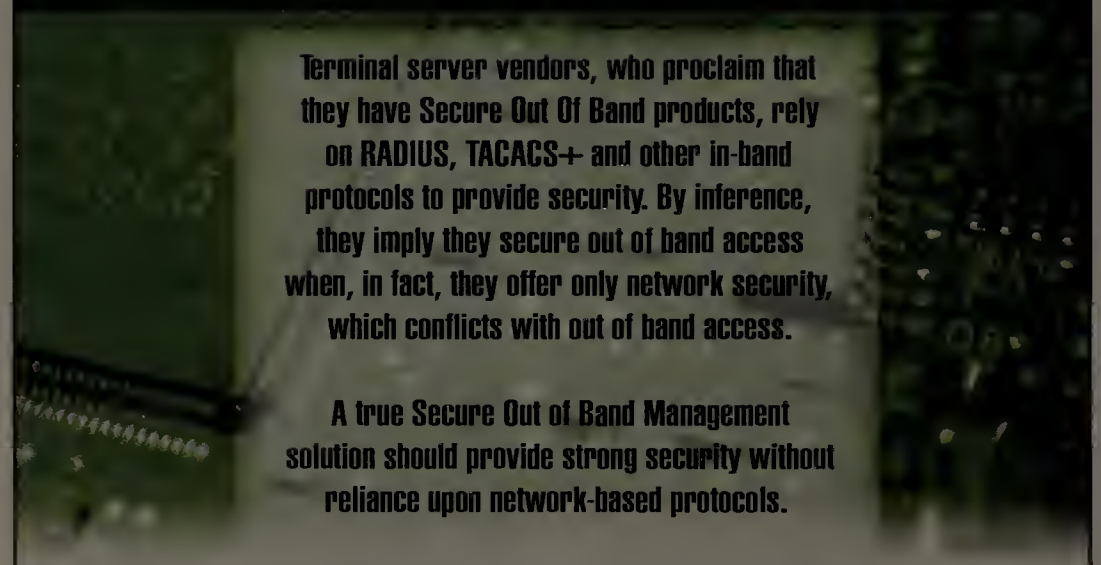


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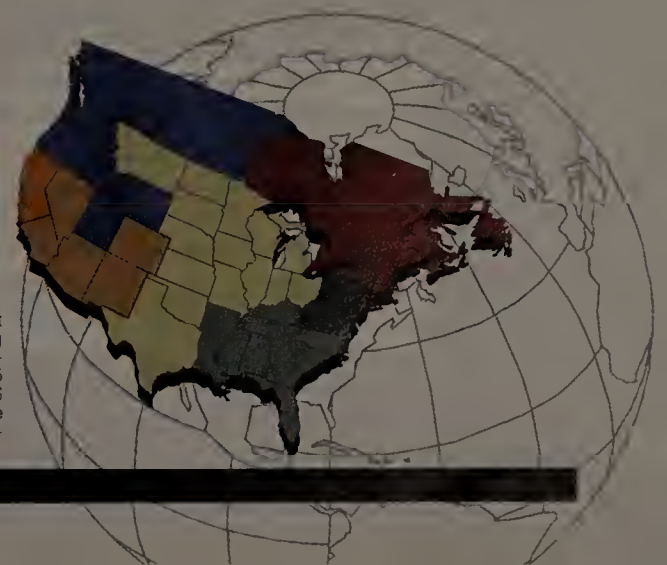
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Cisco

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create a virtualized network layer from which network managers could view performance statistics, take action and manage business services. The premise is to develop an overarching technology that wouldn't eliminate current network, systems or application management products, but rather pull and integrate relevant information from them for analysis and problem diagnosis.

The software would be based on open standards to enable integration across vendor gear and network silos such as systems, storage and applications, Meltzer says, and could be configured to automate fixes on intelligent network equipment such as that detailed in Cisco's Intelligent Information Network. The approach is the opposite of that taken by HP and IBM, whose strategies focus on intelligent software automating management on a dumb network.

"The network is the platform for revenue growth and productivity for our customers," Meltzer says. "We believe you have to both have intelligence within the network and the management software to control it."

Some Cisco users say they'd consider management products from the vendor if Cisco could simplify management across various technologies.

Erik Durand, corporate network manager at Psomas, a civil engineering firm in Costa Mesa, Calif., recently expanded his Cisco investment to include voice gear. He says he'd purchase software to get a single interface into his network. Psomas has Cisco equipment but doesn't use CiscoWorks because Durand found it costly, and he says he'd like Cisco to consolidate management interfaces into one console.

"As our own network expands, having a single point of reference would be great, ideally a logical map of the network that integrates all levels of the network effectively and [gives me] access from anywhere via a Web interface," he says. "That would let me manage routing equipment, security appliances, switching, [network interface cards], every element of the network, and restrict access appropriately based on login."

HP and IBM may lead the management software market today, but industry watchers say Cisco could have a shot at winning customer dollars. George Hamilton, a senior analyst at The Yankee Group, says Cisco turns up on most users' lists of network management tools, especially when speaking of advanced technologies such as VoIP.

A recent survey by the analyst firm found that 76% of 250 network managers polled use application management tools. That's significant, Hamilton says, because if network managers are responsible for application performance, this could represent an opening for Cisco.

"Network managers are depending more on their equipment vendors than they are the more traditional management vendors to help them manage voice, video and other newer IP technologies," he says. "Cisco may not even have to sell to a new group when it starts pushing its management strategy."

"The original intent for Cisco's latest push into management was to tie together all its loose ends in terms of products and management software," says Frank Dzubeck, president at Communications Network Architects. "But, of course, the mantra at Cisco is to increase revenue and develop new business. And this now leads their strategy to go further and further into the management market."

Despite Cisco's dominance in equipment markets, technology strengths and deep pockets, the company will face significant challenges tackling the broader management market.

For one, Cisco doesn't have domain expertise beyond the network. Competitors such as HP, which can manage systems, storage, servers and software, as well as network devices, took years to develop the technology. "Cisco can't do this in a couple of years, even with its acquisitions, because they have to tie all of those together," Dzubeck says.

Kim Jahnz, lead WAN data network engineer at Aurora Health Care in Milwaukee, has Cisco routers in her network, but says she doesn't think she could depend on the vendor for management tools, because she has more than just Cisco gear. "I would think other hardware vendors are not going to be crazy about giving Cisco the kind of access to their equipment that they are going to need to build intuitive management modules," she says.

Others want Cisco to focus development dollars on strengths and address weaknesses.

Scott Pinkerton, network solutions manager for Argonne National Laboratory, a U.S. Department of Energy research center at the University of Illinois, has CiscoWorks in his network management arsenal but says "it's never quite caught on with us enough, so we don't really use it on a day-in, day-out basis." He says he'd like to see Cisco make its equipment easier to manage by open source or third-party management tools, rather than the company developing software to manage other vendor products.

"Cisco has to be more rigorous about developing [management information bases]," he says. "I have a gripe about the [intrusion-detection system] sensors, in that if you're using Cisco management tools, you can query the IDS product to check on CPU and memory usage. But today you can only get it through the Cisco application; it's not available in a public MIB, which can be polled by SNMP."

Brian Jones, network engineering and operations manager at Virginia Polytechnic Institute and State University, says he'd rather see Cisco continue its focus on network equipment. But he gives Cisco the benefit of the doubt. Because the company "understands customer needs and addresses them in an effective manner" Cisco could make a play for management software.

But he says his standards for management are high and he'd demand a lot. "I'd want to see real fault-management software that can handle anyone's MIBs, runs on any [operating system] I choose and has open APIs that allow me to integrate any other tools — off-the-shelf or custom-written — into their system for managing all types of devices, from network gear and servers to environmental monitoring systems. It also needs to be application-aware and allow me to customize the application awareness for custom-built applications."■

The Cisco net management challenge

The network giant wants to bring heterogeneous network management software into its product portfolio, and despite Cisco's formidable strengths, the hardware vendor could be challenged to conquer this technology area.

Challenge	Strategy
Cisco's network management products to date have not only been Cisco-specific, but also Cisco-product specific — meaning there are separate, proprietary products to manage Cisco routers, wireless LANs, switches and voice gear.	Cisco executives say the company is working on a suite of applications that would be independent of its and other vendors' hardware to collect data across the network and tie it back to predefined business requirements. Cisco has said it will use technology from its acquisition of Sheer Networks to build a common services platform.
Cisco's strength and focus naturally has been on network components. The management market has evolved beyond monitoring components separately to providing an integrated view of services that run across networks, systems and applications.	Cisco executives say the vendor is working with systems management companies to develop an industry standard interface to help Cisco and others gain visibility in systems and applications elements to enable enterprise net management. Technology from Cisco's acquisition of Jahi, a maker of software programming interfaces that augment command-line interfaces and APIs, could be a good fit for this type of development.
Network management products must be able to monitor, collect data from and ultimately take action on multi-vendor gear. Cisco could face resistance if it tries to work with competitors to get information on managing their gear.	Cisco executives say the company is developing internally an open standardized method of gaining visibility across network components to access, normalize and correlate data in multiple tools for troubleshooting and diagnostic purposes, with the goal to eventually build workflow and provisioning capabilities across network devices.
Cisco's take on automated, intelligent network management starts with the network, while management software makers such as IBM and HP are promising to deliver automated, intelligent management through systems management software.	Cisco says the network is more than plumbing. The vendor's approach involves Cisco embedding intelligence in its gear and having its hardware with capabilities that would ultimately work in concert with its multi-vendor software offerings.

StorageTek

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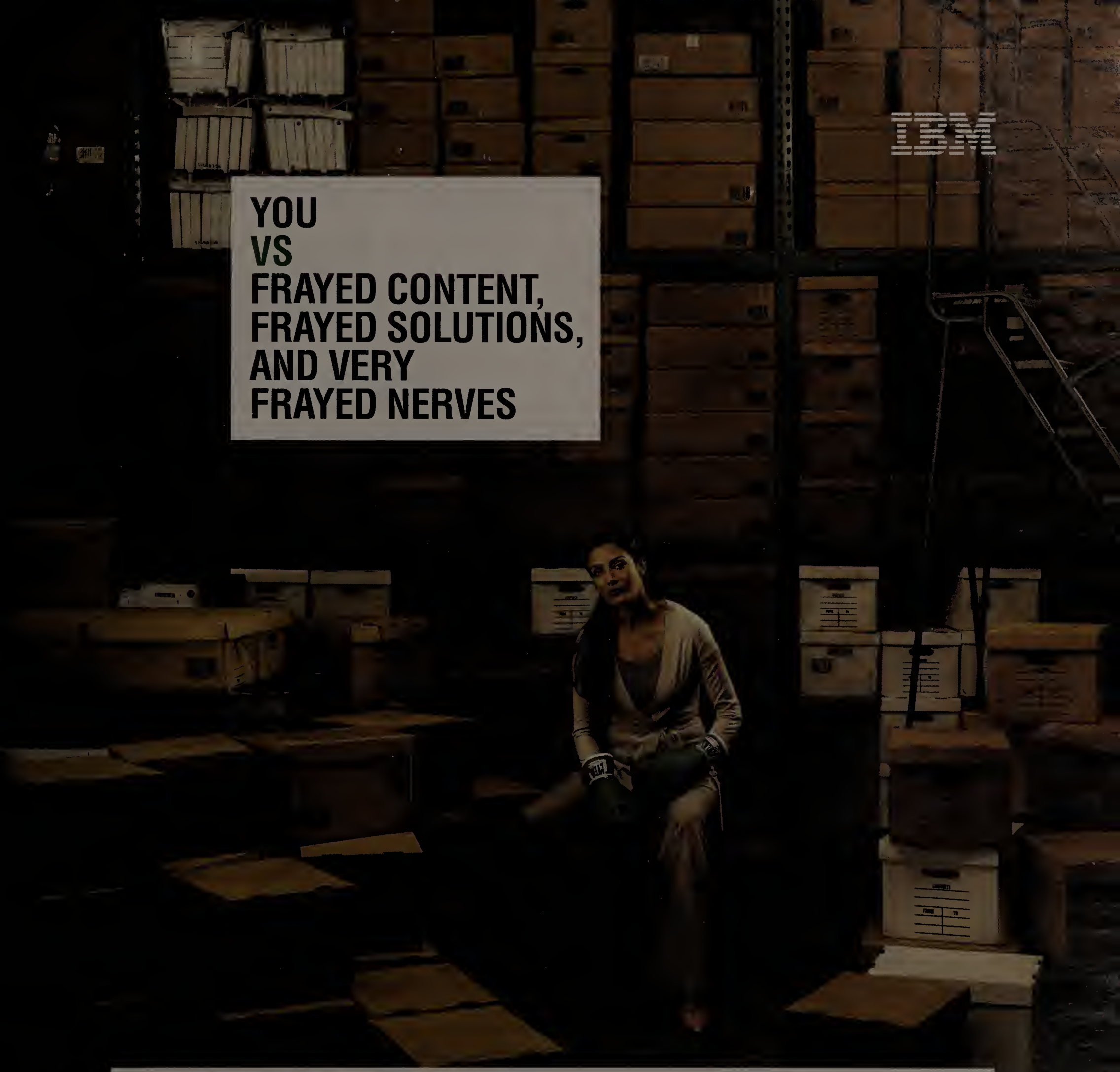
noon and we didn't find out until Monday morning," Petillo says.

"The biggest reason we hired StorageTek to manage our PACS system is we can't be watching the system for 24 hours a day," he says. "We have limited resources in our IT group, specifically in the PACS group. We'll miss things and may not know when something doesn't archive properly."

To archive data, RMS now includes support for StorageTek's Application Storage Manager (ASM), the company's automated data movement software. ASM allows IT administrators to move, migrate and retrieve data across a tiered storage hierarchy.

The RMS service is based on storage management software from start-up Storability, a company StorageTek acquired last year. StorageTek bought Storability's storage service provider business in July 2002; it followed with the acquisition of Storability and its software in September 2004.

The company is offering this capability in cooperation with PACS vendors Agfa Healthcare, Kodak Health Imaging, Philips Medical Systems, Siemens Medical Solutions and Rorke Data.■



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Futurists
continued from page 1

to consider using more cutting-edge technology — the kind that criminals and terrorists are quickly becoming well-versed in — they are faced with two significant issues: First, how does law enforcement use this information to help prevent crime without becoming paralyzed by awesome amounts of data? Second, how do authorities use these tools while maintaining civil liberties?

A forward-thinking group of law enforcement elite, academic types and technology executives called The Society of Police Futurists International (PFI) is grappling with these very issues. The nonprofit group, formed in 1991, brings together individuals with an interest in the future of law enforcement and homeland security. While the group doesn't itself fund research, it places emphasis on "Futures Research" — long-range planning and forecasting — to shape the way policing develops.

"There's the possible future, the probable future and the preferable future," says Tom Cowper, second vice president of PFI and a police executive, who declines to identify his department. "There are things we can do today to make a better future."

Looking ahead . . . and way ahead

According to the Police Futurists International, futurists subscribe to six time frames:

- **Immediate present** – 2 years
- **Short-term** – 2 to 5 years
- **Mid-level** – 5 to 10 years
- **Long-range** – 10 to 20 years
- **Extended** – 20 to 50 years
- **Distant** – 50 years and beyond

The group, which is independent and self-funded, aims to be a link between law enforcement, academia and the private sector. It promotes research, dialogue and information sharing related to the profession of policing, according to its Web site. While PFI has no official role within law enforcement, following the Sept. 11 attacks it formed a subgroup with the FBI called Futures Working Group to "maximize the effectiveness ... of law enforcement bodies." The group publishes articles and white papers on topics such as police professionalism and forecasting crime.

Members of PFI concern themselves with just about anything having to do with the future of law enforcement: social trends, cultural issues, new and changing legislation, technology. The idea behind the group evolved from a course taught in 1982 by then special agent William Tafoya at the FBI Academy in Quantico, Va., titled "Futuristics in Law Enforcement." Current board members include police chiefs, criminal justice professors and security professionals.

For Cowper, who concerns himself with technology issues at work and as a member of PFI, the advance of modern technology has put policing at a crossroads.

"The biggest issue going forward is information and our ability or inability to deal with the vast amounts of information available and that will be increasingly available to law enforcement," he says. Dealt with in an effective manner, information becomes a tool for not just solving crime, but preventing it.

Cowper offers an example. The World Health Organization and Center for Disease Control are using "information fusion" tools to help identify potential epidemics, such as bird flu, in their earliest stages. He defines information fusion tools as "IT tools that allow you to mine, sort, collate and handle information to make sense of it." Collaboration software and decision support tools fall under this category.

But it's also possible that authorities can become so bogged down in the oceans of data now available that gleaning pertinent information amid the ones and zeros becomes impossible.

It would seem a no-brainer that law enforcement officials take advantage of such information fusion tools to catch the bad guys. But in the act of policing, the rights of individuals must remain intact, and many believe that granting law enforcement access to all the information it might want to do its job is a direct violation of those rights.

"Law enforcement is one of the few realms that's really behind the curve in its ability to handle information, and a lot of that stems from civil liberty issues," Cowper says. "The potential to infringe upon people's rights is certainly there. Law enforcement has to use information in an Information Age way; we can do our jobs and be successes and still protect free citizens."

It's a tricky tightrope, Cowper admits. Indeed, Defense Advanced Research Projects Agency's Total Information Awareness Program, launched shortly after Sept. 11 as a way to track terrorists by using revolutionary technology to collect and sort through information — including personal data such as credit card information and airline ticket purchases — was dismantled by Congress largely because of civil liberty concerns.

"In my experience, we in PFI are as concerned about the protection of civil liberties as the [American Civil Liberties Union]," Cowper says. "The issue for me is we have to live in the real world; all this information is out there, we've got to find ways to deal with it."

Criminals and terrorists have access to practically any information they want, as the recent climb in identity theft demonstrates. This puts law enforcement on an uneven playing field. ■

Exchange update to push e-mail to mobile devices

BY ELIZABETH MONTALBANO, IDG NEWS SERVICE

Microsoft last week released a preview of the forthcoming Exchange Server update that will push e-mail directly from the e-mail server to Windows Mobile devices.

The technology will let Windows Mobile device users have the same e-mail user experience available on devices such as the BlackBerry from Research in Motion (RIM), says John Starkweather, group product manager for the mobile and embedded devices team at Microsoft.

The new direct push technology will come in a community technology preview (CTP) of Exchange Server 2003 Service Pack 2, with the full version of SP2 to be available before year-end, says Martha DeAmicis, product manager for Microsoft's Exchange Server Group.

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The push technology no longer relies on Short Message Service to notify a Windows Mobile device to retrieve e-mail from an Exchange server, Starkweather says. Instead, it sends e-mail directly from Exchange to Windows Mobile devices, giving users a faster and more efficient way of retrieving e-mail messages from Exchange.

RIM requires the use of middleware on top of Exchange to let messages be sent directly to BlackBerry devices, which costs businesses and end users extra license fees and requires more resources to implement and maintain. "With Windows Mobile, you can talk direct from Exchange to a mobile device with no server and no [extra] cost," Starkweather says.

One caveat with the new Exchange e-mail push technology is that it's dependent upon the inclusion of the Windows Mobile 5.0 Messaging and Security Feature Pack on devices. An early version of this software is in the hands of OEMs that make Windows Mobile devices, but devices that come with the technology preinstalled will not ship until early next year, Starkweather says.

However, customers will be able to buy Windows Mobile devices that can download the messaging and security feature pack starting around November.

New security features in SP2 also will enhance the mobile e-mail experience, DeAmicis says. One of those is Web-based remote wiping of applications and e-mails on a device in case it should get lost or stolen.

Other enhancements in the Exchange Server 2003 SP2 CTP include spam protection improvements, such as an intelligent spam message filter, and support for Sender ID, a technology that helps companies understand where e-mail is generated in order to block phishing scams.

The Exchange Server 2003 SP2 CTP also will include a Mailbox Fundamentals feature with improvements to the way public e-mail folders can be managed and tracked, as well as an increase in the storage limit for Exchange Standard Edition customers, DeAmicis says. ■

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BACKSPIN Mark Gibbs

Open Wi-Fi, a national risk

"This is very similar to you walking down the street where a store has apples and oranges, and you grab one and keep going ... "

— Ovum Vice President of Wireless Telecom Roger Entner highlighting the gap between his reality and that of the rest of the world.

Opinions have been flying all over the place about the recent Florida Wi-Fi theft case that was extensively covered in the press in July — you remember, the one in which one Benjamin Smith, 41 (why do they always quote people's ages? I want to know how tall he is, his shoe size, his weight ... the stuff that really matters), allegedly accessed an unsecured residential Wi-Fi connection while parked outside the "victim's" home.

What Smith was doing has never been made clear (he was most likely picking up his e-mail), and indeed, exactly how he was caught is also a mystery, but we do know he wasn't on the "victim's" property.

As to the legality of what Smith was doing, there's a huge gray area over whether unauthorized Wi-Fi use is illegal, but what really staggered me was that Smith was arrested and charged with "unlawfully accessing a computer network." This is a crime that carries a penalty of as much as five years in prison.

As far as I can find out, Smith wasn't hacking — in the accepted sense of the word — into the service. It was more like someone reading a book using the light spilling from someone's porch while standing on a public sidewalk.

Don't like that analogy? Well, we can argue endlessly over what might be a suitable one for using someone else's Wi-Fi connection without permission. But as always, digital technologies make real-world analogies tenuous at best.

There has been a huge amount of commentary about this case (most of it pretty silly) but search as I might I can't, at least as of last week, find out what has happened to Smith. Maybe they let him go with a warning ("don't let us find you Wi-Fi rustlin' in these here parts no more, else we'll tar and feather your PC"), or maybe some idiotic district attorney is working himself into a moral frenzy and planning to request the death penalty. Who knows?

Surreal standards

What I know is that there is a surreal quality to the case and that prosecuting Smith would seem to run counter to what I thought was our society's immediate concerns over national security. After all, Smith wasn't responsible for the open access point.

Just think: If Smith had been a terrorist, he might have been sending messages to Osama bin Laden. The owner of the unsecured Wi-Fi connection then would have been, in fact, guilty of aiding and abetting the enemy.

Smith, who at best is a pawn in the whole affair, is almost certainly not a terrorist. But before him there could well have been a terrorist or gangster or other ne'er-do-well using that same unsecured connection.

Get a grip!

Folks, we need to get a grip here. We need to look at this issue in the bigger picture of national security. The bigger picture means that Smith is not guilty of anything and the owner of the unsecured Wi-Fi connection is definitely guilty. Guilty of gross negligence and guilty of undermining the security of our country.

The same goes for anyone or any company that has unsecured Wi-Fi access. That applies to all those pinko, commie coffee houses, parks and wishy-washy liberals who just don't get it. Free Wi-Fi is a national security risk, an open door for the fifth column. An unsecured Wi-Fi point is simply a foothold for the enemies of freedom, and anyone who owns an open Wi-Fi access point should be prosecuted for treason. And hung.

Of course, that's just my opinion.

Your opinion to backspin@gibbs.com. And check Gearblog at www.networkworld.com/weblogs/gearblog.



NETBUZZ News, insights, opinions and oddities

Paul McNamara

Google goes berserk, continued . . .

So I figured the passage of a week and an avalanche of bad press — including an icy snowball from yours truly — might have prompted Google CEO Eric Schmidt to stand up and explain why Google is good for the goose but not for the gander.

Silly me.

"Hi Paul, thanks very much for the follow-up," read the reply from David Krane, Google's ever pleasant but not all that helpful director of public relations. "No, at this time, [there's] still no change in the communications plan."

I suppose duck-and-cover can be considered a communications plan, but it has not proven to be a particularly effective one in this case. Not only has Google continued to be lambasted over this episode, worse yet, the company is being ridiculed. There's nothing more damaging for an image than ridicule. Go ask Tom Cruise.

For those just tuning in, much ado is rightfully being made about the fact that Google has cut off all contact with all reporters from one news organization, CNET's News.com, because a writer on its staff had the temerity to Google the CEO of Google and publish her findings to illustrate a story about privacy issues surrounding the search giant. Telling News.com editors that the tactic was beyond the pale, Google informed them that its staffers would receive not a word of information from Google until July 2006.

Thirty years in the business has allowed me to observe — and participate in — many a brawl between the press and its subjects, but never have I seen anything approaching this level of overreaction. The personal data revealed about Schmidt was not all that personal. You learn that the 50-year-old CEO was worth $1.5 billion as of last year, has sold $140 million worth of Google stock, lives in desirable Atherton, Calif., hosted a fundraiser for Al Gore, enjoys art and pilots airplanes.

Now let's be clear: This being a free country, no one is under any obligation to talk to the press (with exceptions that include some professional athletes, who by virtue of their collective bargaining agreements are indeed compelled to suffer the inquiries of sportswriters).

At least based on my e-mail, however, *Network World* readers clearly understand why Schmidt and Google should clarify their position regarding the use of information gleaned through Google.

"This is bizarre behavior to say the least, and worthy of being a top story until Google explains itself," writes Chris Munger, senior IT manager at the American Academy of Periodontology in Chicago. "How in the world can they react so strongly when they've exposed all the rest of us to the very same thing? It's preposterous to the extreme."

And silence breeds idle speculation, of course.

"I still think there is more to this story," writes Jack Miller, IT director at a consumer products company. "This is as preposterous as Henry Ford owning and driving a Chevy. . . . Given Schmidt's history, I can't see him going off like that, because nothing that vital was revealed."

While there's no way to know for certain, one press account of the imbroglio offered the theory that Schmidt might have been particularly peeved by the fact that one link provided in the News.com story led to a document that included his exact street address. Printing someone's exact street address is rude at best, and I wouldn't do it, but the link scarcely explains the severity of Google's retaliation and completely ignores an obvious question: What about all the other home addresses available via Google?

For example, try Googling the phrase "Bill Gates' home address." Right or wrong, it's child's play to find such information — and Google and Schmidt should be addressing head-on the societal implications of their technology making it so.

I'm no privacy zealot and do not believe there's anything Google should do to limit the availability of public information that is also personal. But I don't run Google and haven't complained about being Googled.

"We are moving to a Google that knows more about you," Schmidt told financial analysts earlier this year. It was clear he didn't mean that is a bad thing.

The gander still needs to explain why.

I'm bugging out for two weeks of vacation. The address is buzz@nww.com.

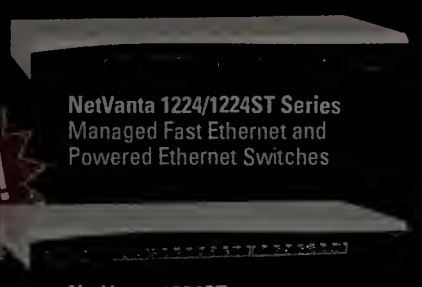
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